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OUTLINE REVIEW OF PHILIPPINE ARCHAEOLOGY BY ISLANDS AND PROVINCES

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TWENTY-TWO PLATES AND TWO TEXT FIGURES

INTRODUCTION

A geographical outline of what has been actually accomplished in Philippine archaeological exploration has long been needed. An adequate account of the finds themselves would easily fill two or three printed volumes, but the present paper is merely an effort to furnish a guide outline of actual accomplishment, based either on personal examination of specimens found or on reported finds of a reliable nature. The areas discussed are arranged geographically, from north to south as far as possible; and, for convenience, some closely related outside areas, not properly belonging to the Philippine Archipelago, are also included.

The authorities for the various finds are usually cited, and, where no names are mentioned, it may be generally assumed that the finds were made by myself or by workmen operating under my direction. So far as practicable, the data under each geographical heading have been arranged chronologically or typologically, but this arrangement has not been rigidly adhered to if inconvenient. The object has been merely to furnish the essential information concerning each province or island in the briefest practical way, with uniformity of presentation followed only where convenient under the circumstances.

History.—Only two important archaeological investigations had been carried out prior to 1926: (1) Alfred Marche's exploration of Marinduque Island, from April to July, 1881; and

(2) Dr. Carl E. Guthe's work in the central Visayan Islands, 1922–1924. While many accidental finds had been recorded from time to time, and a few burial-caves and other sites had been casually explored by European or local scientists, no really systematic work had been done anywhere, except for the efforts of Marche and Guthe. M. L. Miller and F. D. Burdett had explored burial mounds in the Babuyan Islands; E. B. Christie had collected from the burial-caves around Dapitan and in the Zamboanga Peninsula; Miller and Parker, similarly from northern Panay; and Hartendorp, from eastern Samar. Dean C. Worcester had collected celadon porcelains from burial-sites in Cebu, and some of his employees also from Samar, Siquijor, and other islands; while E. de Mitkiewicz collected numerous jars and other ceramics from both Cebu and Luzon. None of this work was very scientifically done, however, and the chief results were miscellaneous collections of ceramics and skeletal material.

In 1923–1924 I attempted a compilation of all known data on true Philippine Stone-Age finds, and after a very diligent search of the literature, as well as an examination of all rumored finds, I was able finally to accumulate data on some 60 implements that seemed to be genuine prehistoric Stone-Age artifacts. Of these, I acquired or personally examined about 30 real Neolithic implements, scattered over a wide geographic range, from Davao to northern Luzon. Most of these tools were obviously Middle or Late Neolithic in type, but they were sufficient to show that we had a true Late Stone-Age population here, even if the remains were scarce and widely scattered. Doctor Guthe's work had added only six or seven specimens to the list of known Neolithic artifacts—the first two Visayan Islands specimens being the very good implements obtained in 1920 by Dr. Warren D. Smith from a cave in Masbate. However, our combined efforts offered sufficient refutation of the commonly repeated statement in books about the Philippines prior to 1920 that the Islands had never had a true Stone-Age population.

Such was the state of affairs down to 1926, when the fortuitous discoveries at the Novaliches Dam (Rizal Province) ushered in a new era in Philippine archaeology. Since that time systematic work has been going on continuously, except as interrupted by the war during the greater part of 1942–1945. Naturally, however, there have been variations in the degree

of activity, and my own chief occupation with the work may be classified briefly as follows:

1. Rizal Province Archaeological Survey (1926–1930).
2. Visayan Islands collecting (1929–1933, 1936–1939, 1941, especially).
3. Batangas Archaeological Survey (1932–1941).
4. Special Pugad-Babuy (Bulakan) collection (1933–1938, especially).
5. Special Santa Mesa and Kubao collections, Rizal Province (1935–1940).
6. Several small collections at intermediate intervals (see especially Pampanga, Busuanga, Camarines Norte, Cavite, Zambales, Sulu, and other places).

Useful comparative data and material were obtained during the three meetings of our Far Eastern Prehistoric Congress (Hanoi, 1932; Manila, 1935; and Singapore, 1938—the 4th planned meeting at Hongkong, 1941, being prevented by the war). Also from the visits of various noted foreign scientists to our sites (especially during and after the F. E. P. C. meeting at Manila in 1935). The importance of correlating Philippine archaeological data with those from South China, Hongkong, and Formosa, on the north; Indo-China, on the west; the Pacific islands, on the east; and from Borneo, the Dutch East Indies, and the Malay Peninsula, on the south, was especially brought out during these visits and Congress meetings.

It is obviously not practical to add all of these areas (especially the more remote ones) to our present outline; but, for convenient comparative reference, I have included South China, Hongkong, and Formosa, on the north, and Borneo and Celebes on the south. The outline itself is more or less self-explanatory.

It is further planned to publish, in the near future, more extended accounts of some of the more interesting sites mentioned in this outline, with full discussion of the collections, and an attempt at interpreting their significance. Such papers will be accompanied by adequate illustrations and pertinent bibliographic data, which the plan of the present outline necessarily excludes.

Chronology and horizon lists.—The oldest artifacts, or man-made stone implements, yet found in the Philippines have been dated by associated fossils as coming within the Mid-Pleistocene geologic period—a time that most modern geologists estimate to be not less than 250,000 to 300,000 years ago. This oldest horizon has, so far, been identified only in Rizal, Bulacan, Batangas, and Davao Provinces.

The full list of subsequent Stone-Age and later horizons may be tabulated as follows (the tentative dates given to be regarded as fair estimates only):

Palaeolithic (Old Stone Age):
- Early type (Middle Pleistocene); as above.
- Later type (Late Pleistocene); between 150,000 and 50,000 B. C.

Mesolithic (Middle Stone Age)—(Early to Late Post-Pleistocene):
- Large implement culture; perhaps 20,000 to 15,000 B. C.
- Semimicroliths and microliths: 12,000 to 8,000 B. C.

Neolithic (New Stone Age)—(Recent):
- Protoneolithic (Bacsonian); perhaps 5000–4000 B. C.
- Early (round or oval axe-adze cultures); 4000–2250 B. C.
- Middle (shouldered and ridged axe-adze cultures); (2250–1750 B. C.).
- Late (rectangular and trapezoidal adze cultures); (1750–250 B. C.).
  - First phase (Early Nephrite Culture); (1750–1250 B. C. ?).
  - Second phase (transitional types dominant); (1250–800 B. C.).
  - Third phase (early "stepped" types, etc.); (800–500 B. C.).
  - Fourth phase (fully stepped implements; with sawing, hole-boring, and "jade-cut" jewelry, etc.; with some imported Greek-culture beads and coins); 500–200 B. C.

Bronze Age: (Mixed with 2nd to 4th phase of the Late Neolithic); about 800–250 B. C.

Prehistoric Iron Age: (about 250–200 B. C. to 9th century A. D.):
- Early (incised pottery, without slip covering); (200 B. C. to about 300 A. D.).
- Late (slip-covered and molded pottery); (about 300–850 A. D.).

Jar-burial culture: (Contemporary with Late Iron Age); about 300–850 A. D. (Pre-Porcelain, in Philippines).

Porcelain Age: (Pre-Spanish: 9th to 16th century A. D.):
- Early monochrome period (Tang and Early Sung); 9th–12th century.
- Later monochrome period (Southern Sung and Yúan); 13th–14th century.
- Early Ming period (15th and early 16th centuries).
- Late Ming period (late 16th and early 17th centuries).

Spanish period remains: (Historic; 17th–19th century):
- Early (1565 to British occupation in middle 18th century).
- Late (1765 to 1898).

Source of data.—Most of the facts contained in the present paper have been derived from two major sources: First, a six-volume work compiled by myself and entitled "Philippine Archaeology" (1926–1947), containing 55 separate papers a list

of which may be added as an appendix to the present "Outline." Second, a two-volume work by myself entitled "Chinese and Southest Asia Ceramic Wares found in the Philippines" (1939–1940), containing approximately 800 typewritten pages. In addition to these two manuscript works, the catalogues of the various collections have been utilized where necessary. Any citation of data from other authors is duly credited in the text.

A. SOUTH CHINA TO LUZON

1. *Hoifung area; Kwangtung Province, South China:*
   Early Neolithic (oval axe-adze culture). (Advanced types.)
   Middle Neolithic (shouldered and early ridged axe-adze forms); characteristic types, most common in site.
   Late Neolithic: Early and transitional type only; a few stepped specimens with ground butts, no sawing; stone spearheads in two areas, but only a few rare specimens are perforated. (No jade culture found.)
   Neolithic cord-marked and net-marked pottery in part of area.
   Chou to Han stamped or molded hard pottery (scarce, and limited in area).
   Workers.—D. J. Finn and R. Maglioni.

2. *Hongkong, Lamma Island, and New Territory areas:*
   Limited areas of Late Palaeolithic and large implement Mesolithic cultures.
   Early Neolithic (widely scattered, and including some primitive Bacsonian types).
   Middle and Late Neolithic types (limited distribution, and specimens scarce); including a few shouldered specimens, several transitionals, and two or three fully stepped specimens—but not sawn. (With limited jade culture, and hole-boring; both scarce.) Also quartz-disk culture.
   Neolithic cord-marked and net-marked pottery in Lamma Island area; scarce elsewhere.
   Chou to Han stamped and molded hard pottery (plentiful); with limited bronzes (including celts and spearheads, similar to Indo-China types and to Batangas).
   Early glazed porcellaneous wares (Han to Tang); in considerable quantities, in several different areas. (Many with potter's marks on base.)
   Early Ming sherds or midden dumps in certain specific areas (usually marking early European trade-centers and residence areas).
   Workers.—C. M. Heanley, J. L. Shellshear, D. J. Finn, W. Schofield, and R. Maglioni.

3. *Formosa Island (Taiwan):*
   (Certain possible palaeoliths found with Pleistocene mammalian fossils; of rhinoceros, stegodon, etc. (See notes by I. Hayasaka, 1942.)

Early Neolithic, (round or oval axe-adze culture); plentiful at certain limited areas in northern part of Island.
Middle Neolithic (shouldered and ridged axe-adze forms); typical of Maruyama Site, Taihoku, and a few other places.
Late Neolithic: The usual early trapezoidal adze forms, and a few transitional stepped forms; spearheads; limited hole-boring, but sawn forms absent or very scarce. (Jade culture present in specific areas, according to Kano.)
Bronze-Age remains scarce (but known from limited specific areas in several parts of Island).
Neolithic pottery reported, but authenticity doubtful.
(Records lacking for true Iron-Age and Porcelain-Age sites; but some undoubtedly exist, and many rare Iron-Age beads are found treasured among the pagan mountain peoples, who are close kin to the pagans of northern Luzon.)
Chinese historical records indicate Visayan settlements in southern Formosa as early as the 12th century or before (see Hirth and Rockhill; etc.).
Workers.—T. H. Linn, N. Utsurikawa, Erin Asai, Tadao Kano, and others.

4. *Samasama Island (Kasho-tō) near eastern Formosa coast):*
Late Neolithic (with jade-culture ornaments, and some bronze).
Jar-burial culture (of the Batanes-Babuyan type?).
Worker.—Tadao Kano.

5. *Botel Tobago Island (Kōtō-sho):*
Early Neolithic (oval adze culture); a few specimens only.
Late Neolithic; regular plain-backed rectangular and trapezoidal axe-adze forms only; no shouldered or stepped forms yet found, but limited jade culture present.
Jar-burial culture (similar to Batanes-Babuyan type).
Chinese historical records of 12th–13th century refer to this Island as "T'an-ma-yen" (or, in Cantonese, "Tam-ba-gan"); see Hirth and Rockhill.
(Natives show cultural and linguistic kinship to the Ivatan; but in physical type, and in their stone-walled terrace culture, they most resemble the Bontok group of northern Luzon.)
Workers.—Erin Asai, R. Torii, Tadao Kano, and K. E. Stewart. (For stone implements, see also E. R. Leach, 1938.)

6. *Batanes Islands (sites examined all being on Batan Island):*
(No true Stone-Age remains have yet been recovered; and no bronze, but certain very old ornaments of Bronze-Age forms, and certain imported Greek-culture and Bactrian beads, may go back to a Bronze or very early Iron-culture period.)
Jar-burial culture.—First discovered and explored by Pio Montenegro in 1931–1935, and is perhaps the oldest jar-burial type in the Philippines—going back to the early centuries of the Christian Era. The jars are larger and of somewhat different shape than those found in the Babuyan Islands and southwards. Several large-size burial-jars were first excavated in

the site known as "Itbud," in the district of Uyugan, some distance to the southeast of Ivana. Five other localities were later investigated, and two of them produced typical jar-burials from the peculiarly shaped mounds known as *pada-paday* by the local residents. The most interesting specimens were found in 1932 at the small site known as "Chanarian," in the north central part of the Island.

The jar containing the body was usually first put into an excavation—sufficiently deep so that the top of the cover was seldom much above the ground level—and then the hole was filled in and covered with an earthen mound of some size (in the Babuyan Islands being still further covered with a stone cairn). In most of the jars found the bones were already wholly disintegrated, but in a few cases the teeth and some sizable bone-fragments still remained. The jars are all made of a thick half-baked hard pottery or a medium-soft stoneware, doubtless of local manufacture. They rarely contain ornaments or other durable objects besides the body itself, though occasionally a few small beads and other ornaments have been found.

Iron-Age sites.—In two of the sites explored by Montenegro a very different type of burial that seems to belong to a rather late but pre-Porcelain Iron Age was found. Here quantities of beads of Iron-Age types (including some typical *pañgo*), some small iron tools or weapons, pieces of common pottery, and several very interesting gold ornaments, have been recovered. At Uyugan, in November, 1933, a similar grave was found that seems to be transitional to the Early Porcelain Age—seemingly containing elements from both cultures.

Early Porcelain-Age sites.—The true Porcelain-Age graves of Batan Island contain some of the earliest porcelain pieces yet found in the Philippines. Only in parts of the Sulu Archipelago, and in Site 7 of the Rizal Province exploration have equally old specimens turned up. (This type of ware is characterized by an unusual proportion of white or light-colored pieces with incised or impressed designs of Late Tang and Early Sung styles. Some of them are probably Yü-yao ware from Chekiang.) The midden fragments from such sites also contain a good many examples of thin or medium-thin stoneware jars, of various sizes, which also appear to be of Late Tang or Early Sung date.

Later Porcelain-Age and historic finds.—Several scattered accidental finds of celadon dishes and other pre-Spanish ceramic pieces, and some interesting heirloom pieces from the early Spanish period, are known not only from Batan Island itself but also from Itbayat and Sabtan. Some curious bead neck-ornaments, gold earrings and headbands, of undoubted pre-Spanish date, are still preserved among some of the wealthier families. (Search of old records by Dampier and the early Dominican missionaries should be made for references to pre-Spanish culture.)

Workers.—Otto Scheerer, Pio Montenegro, Tadao Kano. (For additional data on Batan Island, see Addendum.)

7. *Babuyan Islands* (*Camiguin, Dalupiri, Fuga, Calayan, Babuyan Claro*):

(No true Stone-Age or Bronze-Age remains yet recorded.)

Early or Middle Iron-Age sites.—Some quite Early Iron-Age remains have been found, on Camiguin Island especially. Some lumbermen, working there, have reported frequent finds of typical Iron-Age burials, in the shallow excavations made for establishing their camps, in the now-forested eastern part of the Island. The descriptions given by several of the men indicate that quantities of beads, bracelet fragments, potsherds, pieces of iron tools and weapons, and other objects, were found in these graves. The few specimens that I have seen were almost identical with the Iron-Age remains from Sites A, C, and H, in Rizal Province. (Further investigation should be made here whenever opportunity offers.)

Jar-burial culture.—On all of the Babuyan Islands (except possibly Fuga) typical early jar-burial remains have been found. Their presence is usually indicated by stone cairns or earthen mounds—although in some inhabited areas cultivation has eliminated the earthen mounds and the local people have sometimes carried away the stones from the cairns (called "kunukun") for building purposes. The least disturbed remains have been found on Camiguin, Dalupiri, and Babuyan Claro—where the present population is very sparse—but literally hundreds of jar-burials are said to still exist in Calayan Island, where the population is considerably larger. (Parts of Fuga Island are also said, by Willcox, to contain jar-burials, but this report has not been satisfactorily verified.)

The first serious exploration was made by Merton L. Miller, on Camiguin Island in 1910, reported in a brief paper.[1] Many mounds were examined but only a few were excavated and the remains brought to Manila. Practically all of the jars were found broken in the ground, and the skeletal remains entirely disintegrated. An interesting variation from Batan was the finding of smaller pieces of native pottery (usually with stands and molded rims) buried alongside the larger jars. Several of these pieces were recoverd whole. Some later and more successful work was done on the Island by Capt. F. D. Burdett, about 1912–1913.

Calayan Island was first explored by F. D. Burdett (in 1912–1913?), and several good burial-jars were obtained and later sold to the old Philippine Museum. In 1932 Aleko E. Lilius and I. B. Maddela excavated jar-burial cairns and mounds at Tumulod and Silpi, obtaining one burial-jar in nearly perfect condition, and several broken ones. As usual the bones were in a much-decayed condition. A few red carnelian beads, and

[1] Phil. Jour. Sci. § D 6 (1911) 1–5, pls. 5.

some pottery rings or ear-ornaments were found in one jar, but no metal objects of any sort. (There are probably still nearly a hundred unopened mounds on Calayan. Some of them should be excavated carefully.)

Babuyan Claro Island was visited in the late 1930s by several officers of the Coast and Geodetic Survey who reported the existence of numerous unexcavated jar-burials and several other interesting types of remains.

Dalupiri Island was first explored, rather briefly, in 1935, by Dr. H. H. Bartlett accompanied by José V. Santos and M. Kalaw, of the University of the Philippines Department of Botany. A few jar-burials in cairns were carefully explored—being located near the mouth and along the sides of the canyon called *Manolong*. One almost perfect burial-jar was obtained from a cairn; while in a burial niche facing the sea, another broken jar was found firmly wedged among the rocks. (These specimens are now in the University of Michigan Museum); in 1938 Doctor Bartlett published an excellent general review of "Jar Burials in the Babuyan Group * * * especially those of Dalupiri Island."[2] The bones had entirely decayed in all of the jars examined, although one tooth was found.

The Babuyan Group is still a treasure house of jar-burials of the early type—most of them definitely dating from the first half (if not the first quarter) of the Christian Era. (Full reasons for thus dating these jar-burials are given in my MS. paper entitled "Jar-burial in the Philippines," Manila, 1938—with supplement in 1941.)

Early Porcelain Age.—One of the graves excavated by Aleko E. Lilius on Calayan in 1932 contained a burial-jar of an entirely different type, and of somewhat later date. This is a medium-large but short and wide-mouthed jar with six ears, covered with a green glaze, and undoubtedly of Late Tang or Early Sung date—almost identical with some half dozen similar pieces found in the older section of the Hacienda Ramona Site, in Pampanga Province. In all cases these jars contained a considerable quantity of disintegrated bone fragments, and usually a few carnelian beads and other small objects (in one case a spindle whorl).

About 1923–1924 Mr. Frank D. Yost, of the Bureau of Lands, obtained a small and very well-made celadon dish, with a greyish green crackled glaze, from a homesteader on Calayan Island, who found it when excavating holes for his house-posts. The piece is undoubtedly of Sung date, and probably indicates an Early Porcelain-Age burial in that vicinity.

Several other celadon dishes and stoneware pieces have been reported from accidental excavations on Calayan and Fuga, but I have not yet examined any of them.

[2] Papers Mich. Acad. Sci. &c. 23 (1937) 1–20, 5 pls.

Later Porcelain Age.—F. D. Burdett reported finding a dragon-jar on Camiguin, and Mr. F. W. Sapp brought in several Early Ming fragments obtained in a cave along the coast of the same island. Doctor Bartlett found a few Early Ming blue-and-white fragments on Dalupiri; while J. Scott McCormick and some C. & G. S. officers found quantities of Early Ming sherds in the caves of Babuyan Claro. Those specimens that I have seen were probably all of 14th and 15th centuries, and were all Chinese wares.

At least two village midden sites of probable Early or Middle Ming date have been reported from Babuyan Claro.

Spanish period records.—Only on Babuyan Claro do any of the original Babuyan inhabitants survive. On the other islands they were induced to migrate to Luzon, between 1690 and 1750, by the early Dominican missionaries, and most of them appear to have settled in the Malaueg area of Cagayan Province. (A unique dialect is still spoken in that area.) The present population of the Babuyan Islands (except Babuyan Claro) is chiefly a mixture of recent Iloko and Ibanag settlers.

Workers.—Captain Mitchell, Merton L. Miller, H. G. Ferguson, F. D. Burdett, C. Willcox, Henry Becker, F. W. Sapp, Aleko E. Lilius, I. B. Maddela, J. Scott McCormick, H. H. Bartlett, and others. (For historical period: Otto Scheerer, Fr. Julian Malumbres, and H. H. Bartlett.)

B. LUZON AND ADJACENT SMALL ISLANDS

8. *Cagayan and Isabela Provinces (Cagayan Valley area):*

Mid-Pleistocene.—Fossil bed, containing rhinoceros teeth and bones, and probable remains of other large mammals, found by prospectors Alfonso Bagunu and Rodolfo Albano, in 1936, in the mountains just back of Laya, Cagayan (almost on the Cagayan-Isabela boundary line); and samples brought to their home in Cabagan, Isabela. (Later brought to Manila by Jose Datul.) This bed has not yet been properly explored.

Tektites.—A few true transported tektites found in October, 1945, by Lieut. William G. Beyer, in a field with reddish soil and containing manganese nodules, about 2 kilometers southeast of the Ilagan provincial hospital, Isabela Province. Five whole "Claveria-type" pseudotektites found on beach near Claveria, Cagayan, in 1928, and sent to Bureau of Science for determination.

Prehistoric shell-heaps.—Several large prehistoric shell-heaps were cut through, in road-building, near the Cagayan-Isabela boundary line. (Reported by Provincial Engineer before the war, but not yet properly investigated.)

Late Neolithic remains.—Three good Late Neolithic implements (two adzes and one chisel) were found by a Japanese officer in northern Isabela (exact locality not recorded) in 1942 (shown to me in Manila 1943, and drawings made). Two specimens are fully stepped, and one is plain-backed. (Taken by Mr.

Aikawa, of the educational department, Military Administration, in August, 1944, and probably lost or destroyed at end of war.)

Post-Stone-Age remains.—No record as yet of any Bronze-Age, Iron-Age, or pre-Spanish Porcelain-Age sites or finds, in these provinces. Undoubtedly some such remains exist—particularly of the Porcelain Age. For early history of the area, see Julian Malumbres "Historia de Cagayan," "Historia de Isabela," etc.

Workers.—(As mentioned under the preceding various items.)

9. *Apayao Subprovince (formerly under Cagayan; now under the Mountain Province):*

(No record as yet of any Stone-Age or other pre-Porcelain remains.)

Porcelain-Age survivals.—Ming jars, and possibly a few pre-Ming ceramic pieces, are still preserved among the well-to-do Apayaos as heirlooms. Also some ancient beads and silver ornaments. (It is said that such objects were formerly buried with the dead; but there has never been any proper archaeological exploration within the area.)

Spanish period remains.—The ruins of at least two old Spanish missions of the 17th century are known, but they have not been investigated.

Workers.—H. O. Beyer, MORICE Vanoverbergh, Otto Scheerer, and (for history especially) Julian Malumbres.

10. *Ilocos Norte Province:*

Pseudo-tektites.—No true tektites have yet been found in this province, but a large number of the so-called "Claveria-type" of pseudo-tektites have been found at the Selga Site, near Pasuquin. (Fr. Miguel Selga has written a paper on this material, published by the Philippine National Research Council in 1935–1936.)

Stone Age.—No genuine Stone-Age artifacts have yet been reported, except one small obsidian flaked microlith, sent to me by a local geologist, shortly before the outbreak of the war, with statement that he had found it in a field near Pasuquin. (The area should be further explored, as no other obsidian implement has yet been reliably reported north of Bulakan Province.)

Early Porcelain.—At least two Late Tang-Early Sung midden dumps or old village sites located by me on low elevations near Paoay Lake, during a brief trip in the fall of 1928. It is probable that other similar sites could be found near the coastal area.

Later Pre-Spanish Porcelain Age.—Late Sung, Yúan, and Early Ming celadons and other ceramic pieces have come from accidental excavations at various places in Ilocos Norte and Abra. Doctor Palencia, formerly attached to the mission hospital in Laoag, possesses an interesting collection of such specimens.

Spanish period remains and records.—Some very interesting old stone churches, ruined missions, "Moro" towers, and other

remains of the early Spanish period exist in this province. (Photographic and descriptive records should be made for permanent preservation.)

Workers.—Miguel Selga, H. O. Beyer; and (for history especially) Isabelo de los Reyes, and Camilo Millan.

11. *Abra Province:*

(Some interesting fossils and shell-beds, near Kimalásag barrio, Pilar municipality, have been reported as early as 1926 by Jose V. Corrales; but have never been properly explored or verified.)

Late Neolithic artifacts.—Several good adzes and chisels (at least two of which are early "stepped" forms) were located by Dr. Fred Eggan in 1934–1935. A few were accidental finds, preserved in the charm-boxes of Tinggian medicine-men as magic stones. (No actual Neolithic site was located.)

Other Late Stone-Age remains.—A number of sandstone knives, daggers, and arrow-points or spearheads, of a peculiar type associated with a crude hand-made pottery, were found by Jose V. Corrales from 1926 to 1928, in the Pilar Sites near the Ilocos Sur boundary line.

Mixed Late Iron-Age and Early Porcelain-Age area.—The "Corrales Sites" in Kimalásag barrio, Pilar—explored chiefly in 1926–1927—contain what appears to be a Late Iron-Age and a Sung-period Porcelain-Age mixed culture. Both burial sites and midden deposits were found, and some very interesting specimens obtained.

Later Porcelain Age.—Numerous heirloom jars and other ceramic pieces, specimens of ancient beads, and other objects are preserved in the homes of the wealthier Tinggians in many parts of the province. A number of good burial-pieces have also turned up in accidental excavations, and several private collectors in Bangued had accumulated a number of them before the war. (The best of these collections, in Bangued, Vigan, and Laoag, were examined and described by E. D. Hester, in March–April, 1933.) Much data on the rare beads was recorded by Dr. F. C. Cole.

Surviving early records, etc.—Much interesting data on pre-Spanish conditions survives in epic poetry, both in Iloko and in Tinggian (Itneg). Some of these epics have been discussed by myself and Isabelo de los Reyes, F. Blumentritt, Juan T. Burgos, Dr. F. C. Cole, and Ernestina L. Llanes.

Workers.—(As mentioned under the preceding various items.)

12. *Kalinga Subprovince (now under Mountain Province):*

(No true Stone-Age artifacts yet recovered.)

Bronze- and Iron-Age survivals.—Certain ancient metal ornaments, gongs, and rare beads, still possessed as heirlooms by the wealthier Kalingas, may be Bronze- or Early Iron-Age productions. Certain bead types especially, that are very highly valued by the Kalingas, seem to be definitely of Greek or Roman

manufacture sometime prior to the beginning of the Christian Era. Exactly similar beads have been found in Rizal Province in sites of the 2nd century B. C., and one type, at least, is still earlier than this (pre-Iron Age) in Batangas Province.

Pre-Spanish Porcelain-Age survivals.—The Kalingas, like the Apayaos and Tinggians, are great collectors of ancient porcelains and jars. A majority are of Early Ming dates or later; nevertheless, a number of good pieces of Yúan and even Late Sung dates are still to be found. They are not easily obtained, however, as the value that the Kalingas place upon such pieces is often as high, or even higher, than their worth to a foreign collector.

A number of good celadons have come from northern Kalinga; and, rather surprisingly, several of the best specimens that I have seen are of Sawankhalok manufacture. Early and Middle Ming blue-and-whites and polychrome wares have also been found. It is still uncertain as to how many of these pieces are true heirlooms—and I believe that a number of them, at least, have actually come from accidental excavations.

Monumental and other remains.—The origin of the great stone-walled rice terraces, and certain other remains of a monumental character, will be taken up later in connection with Ifugao and Benguet Subprovinces.

Workers.—H. O. Beyer, R. F. Barton, W. S. Boston; and (for linguistics and history) Otto Scheerer.

13. *Bontok, Lepanto, and Amburayan Subprovinces (old boundaries, as of 1912. Then wholly under Mountain Province; now partly joined to Ilocos Sur, etc.):*

(No true Stone-Age original artifacts yet found; but much use of stone tools in later cultures—some of them doubtless being carryovers from Stone-Age times.)

Bronze-Age and Iron-Age remains and survivals.—A true Copper-Bronze culture, centering in Lepanto Subprovince, is probably also to be associated with the early stone-walled rice terraces and other special features of the Terrace Culture in general. Remains of ancient copper, silver, and gold mining, smelting, and working have been found in various places. Also certain ancient ornaments and beads, as well as a few old gongs, images and copper or bronze vessels, that probably go back before the beginning of the Christian Era, although many others of later periods, are still in use.

Porcelain-Age remains and survivals.—Ancient jars, beads, and the like are scarce among the Bontoks, but more plentiful among the Igorots of outlying areas. However, a few Ming pieces are found nearly everywhere, but only in the Bakun highlands of Amburayan are the older pieces really common.

The only pre-Spanish midden sites yet found are located on the low tableland on which the town of Cervantes now stands, both to the north and the south of the town. The specimens examined seem to be mostly Early Ming sherds, with a little

later material mixed in. A few old fragments were also picked up by me at one spot near the town of Baúko—but time was not available for a careful examination of the area.

The most interesting Igorot remains occur in the region around the Sagada Plateau, where the abundant limestone caves, niches, and rock-shelters have long been used as burial places. Numerous fragments of decayed wooden coffins, skulls and other bones, and occasionally sizable ceramic fragments are common in rock-shelters under the edges of the cliffs. (None of these have ever been properly excavated; and a careful survey should be made there, if opportunity offers.)

This whole area presents a rich field for future archaeological work. Doubtless many old village sites and burial places could be located by a little patient research, in all three subprovinces, and their careful investigation might well throw much new light on the whole past history of the region.

Workers.—A. E. Jenks, James A. Robertson, H. O. Beyer, R. F. Barton, Morice Vanoverbergh, Angel Perez, M. Goodman, A. J. Eveland, and W. F. Hale.

14. *Ilocos Sur and La Union Provinces:*

Stone-Age remains.—A true Late Neolithic stone adze or chisel, of regular trapezoidal form, was found near San Juan, La Union in the 1920s, by Forester Dacanay. (The exact site has not been recorded.)

(The stone daggers, mentioned under the next item below, from Santa, Ilocos Sur, may also possibly be of Late Neolithic date.)

Early Porcelain-Age remains.—At Santa, Ilocos Sur, near the Abra River Gap, several graves were cut into during road-building, containing early Sung funerary pottery and porcelanous wares (exactly similar, in type, to those illustrated and described by B. Laufer, as coming from Early Sung graves in north-central China). On a nearby hill, another still older grave was cut into, containing no imported wares, but only two pieces of hand-made native pottery associated with two stone daggers of the peculiar sandstone type described under Abra Province.

Epic poetry and early traditions.—In northern La Union, and elsewhere, several ancient epic poems (dating probably from the late pre-Spanish and early Spanish periods) have been preserved. Some of them describe wars with the "Tattooed Igorots," and give many interesting details of pre-Spanish Iloko life and beliefs. The best known of this group of epics and traditions is *Biag ni Lam-ang,* recorded at an early date by a priest of Bangar, La Union, and first printed in 1889; but there are other poems also of much interest. (A serious comparative study of this early literature should be undertaken.)

Workers.—Gerardo Blanco, Isabelo de los Reyes, José V. Corrales, Juan T. Burgos, Emerson B. Christie, Morice Vanoverbergh, Leopoldo Y. Yabes, Jose R. Calip, and Ernestina L. Llanes. (Also see Addendum for further data on La Union Province.)

15. ***Benguet Subprovince (now under the Mountain Province):***

Stone-Age remains.—A Late Neolithic stone adze or chisel, with a slightly curved back and of a rather rough trapezoidal form, was found in a hillside clearing near Haight's Place (K. 53, Mt. trail). Igorot tradition reports similar specimens being occasionally found around Kabayan, and in the Agno and Kapangan River Valleys where they are known as "thunder teeth," and are regarded as possessing potent magic properties.

Terrace culture.—The stone-walled rice terraces of the Kaiyapa District are probably the most ancient in the Mountain Province—and have been the subject of a special study by myself. (Many areas there have been long abandoned, and both ancient village-sites and walled-up tombs in the mountain sides should be sought for and excavated.)

A long-abandoned village site, with a nearby walled-up tomb of good size, exists on top of the high ridge above the Itogon Mine—first called to my attention in 1937 by J. H. Marsman. I made a careful examination of the area, and regard it as well worthy of study and excavation, but work there will be difficult owing to the nature of the terrain. (The age may be anywhere from a few generations past up to several centuries, but it is no longer remembered in local tradition.)

Early Metal-Age remains.—Certain ancient copper and gold workings, in the Itogon-Búa area especially, go far back into the past and seem to show a kinship to the old Lepanto workings (described under item No. 13, above). Some very ancient gold ornaments, copper vessels, sacred drums, gongs, and the like, still existed among the wealthier Igorots before the war.

Porcelain-Age site and survivals.—A grave containing whole pieces of late 15th and early 16th century Ming porcelains was cut into during development work on the Gold Creek Mining Co. property near Búa in November, 1932 (found by the late C. L. O'Dowd); while other graves with similar contents are reported to have been destroyed in former times in the same vicinity.

Many old jars and other ceramic pieces are also kept by the wealthier Igorots, especially in northern and eastern Benguet.

Burial caves and mummies.—One of the most interesting types of remains in this Subprovince, however, is the great number of burial caves and niches, containing wooden coffins, bones, and especially (in some places) dried mummies. These mummies have remarkable lasting qualities, considering the climate; and the history of several specimens, at least, has been traced back to from 150 to over 200 years. (The preservative used is the *sablut* concoction, also known to the ancient Ilokos and to the Ifugaos.) One cave on Mt. Sto. Tomas, near Baguio, was found to contain more than 20 mummies, of which at least half were in a fair state of preservation. Near Buguias and Loo, in the northern part of the Subprovince, the famous mummy of Anó—long kept in a burial niche in a nearby cliff, treated with re-

spect, and made frequent offerings by the people—was stolen by a missionary from San Fernando, La Union, and later became the object of a court case. The specimen, having been placed in my charge for some time, was examined by me carefully and its history investigated. It proved to be over 200 years old, and was still in perfect condition, having been kept in a wooden coffin in a dry niche, at an elevation of nearly 7,000 feet above sea level. The body was completely tattooed, from the top of the forehead to the soles of the feet, with an intricate pattern of the type illustrated by Hans Meyer in his monograph on the Igorots in 1885. (All mummies still existing should be scientifically studied and photographed.)

Workers.—Hans Meyer, Angel Perez, Otto Scheerer, H. O. Beyer, Alphonse Claerhoudt, and others. (See Addendum for further data on Benguet.)

16. *Ifugao Subprovince (now under the Mountain Province):*

Stone-Age remains.—A well-made Late Neolithic stone adze, of a trapezoidal early stepped form, was found by Colonel Munson and Doctor Pick in a newly excavated road-bank between Kurug and Piwong, in central Ifugao. Several years later I examined the area briefly, finding no more stone implements, but locating in a similar road-bank nearby a vein of much disintegrated pottery fragments. These small sherds had exactly the appearance of the Early Iron-Age wares of Rizal Province. (The area should be thoroughly examined at the first opportunity.)

Stone-Age survivals.—In addition to the rice-terraces there are many other modern uses of stone in Ifugao life,—some of which seem to be direct survivals of a Neolithic culture. Until recently Ifugao smiths did all their finest metal work with stone hammers and stone anvils, in addition to the usual three-stone set-up of their forges and fireplaces. Sharpening stones, polishing stones, small mortars and pestles, mullers, stone beads, and a variety of other objects; throwing-stones, as weapons; etc., all testify to such survivals.

Stone implements, tektites, and fossil mammalian teeth (particularly of the timarao and wild carabao) have all been reported as being found among the "Buga" or magic stones, in Ifugao sacred "medicine-boxes." (I have collected some of the fossil teeth, but have so far failed to secure any authentic specimens of the tektites or stone implements.)

Terrace culture.—The great system of Ifugao rice-terraces—most spectacular of its type in the world—is now believed to have had its beginning in the Copper-Bronze period, several centuries B. C. The Hungduan-Ahin Valley, which is the greatest single terraced area, and the Hapao Valley adjoining, both contain remnants of important secondary copper-bronze industries—although the copper, gold, and silver themselves mostly came from the Lepanto area previously discussed. Ancient copper pots, spoons, images, and ornaments were formerly very com-

mon in these valleys, but have now largely disappeared. Copper silver bronze gongs, and bronze-silver-gold ornaments were still quite common prior to the recent war.

Ancient beads, jars, and gongs.—The oldest Ifugao bead types are probably Greek and Roman specimens dating from the 5th to 1st century B. C., but the commonest of the rare types is a special Bactrian bead, known as *Páñgo*, consisting of two amber-glass cylinders with a layer of gold-leaf between, probably also dating from before the beginning of the Christian Era. (Páñgo beads are also found in the Batanes Islands, and among the Tinggians of Abra and western Kalinga.)

Old jars and bronze gongs, mostly of Chinese origin, are possessed by wealthy families and some pieces have been handed down as heirlooms for a dozen generations or more. Ming jars are still fairly common, but pre-Ming pieces are very scarce—those that I have seen being probably all of Late Sung or Yúan dates.

Literary antiquities.—Ifugao epic poems and myths (especially the *Hudhud* and the *Alim*) are worthy of extended study for the light that they may throw on the past, as well as for their literary character itself. (They should be studied especially in comparison with similar epic and myth material from adjoining Igorot regions in Lepanto and Benguet Subprovinces; etc.)

Workers.—Juan F. Villaverde, Julian Malumbres, B. Campa, Angel Perez, Dean C. Worcester, H. O. Beyer, R. F. Barton, Jeff D. Gallman, and Francis Lambrecht.

17. *Nueva Vizcaya Province:*

(No true Stone-Age material yet recovered. Although potentially interesting and possessing a long historical record, this province has been but little explored archaeologically, and few pre-Spanish remains of any sort have been found.)

Possible Iron-Age site.—Some possible Late Iron-Age decorated pottery of a very interesting type was found by the late Tom Myers on an ancient village site in the heart of the Ilongot country, in May–June, 1935. On the Conwap River, several hours to the west of Pugu (in the Abaká country), an interesting site was found on the crest of a ridge or hill above the stream. The chief content of the midden site was a quantity of peculiarly decorated pottery, with incised designs of a unique pattern not yet found in any other Philippine area. A liberal sample was brought in for my collection, but much more could be gathered there. No porcelain fragments were found in the midden area, and it seems very possible that the site may be pre-Porcelain Age.

Ruined Spanish Missions.—Interesting 17th and 18th century Spanish-period objects have been found around the ruins of the early Augustinian missions in the Ilongot country—all of which were closed down and completely abandoned about 200 years ago. The ruins of at least eight or ten stone churches are known.

but only a few have been visited or described. Myers found two that had not been previously reported. Seventeenth and eighteenth century ceramic fragments were plentiful around both of them. (Mostly Chinese porcelains and stoneware, native wares being rather scarce.)

Workers.—Francisco Gainza, B. Campa, Julian Malumbres, W. C. Bryant, Wilfrid Turnbull, Carl Taylor, H. O. Beyer, Tom Myers, and Antonio Mozo.

18. *Nueva Ecija and northern Tayabas (old "Principe") Provinces: (These two areas are combined for geographical reasons, but will be discussed separately: (a) The old Spanish province of Principe, now a part of Tayabas [Quezon] Province; and (b) Nueva Ecija Province proper (which formerly included all of northern Tayabas)*:

(*a*) *Northern Tayabas.*—(No true Stone-Age remains yet found and only one pre-Spanish site of any considerable importance. However, other pre-Spanish remains should be sought, especially at Baler and Kasiguran, around Dingalan Bay, and on the Island of Polillo.) [See Addendum for further data on Polillo Island.]

Lampong Bay area.—One pre-Spanish porcelain-bearing site of Ming date was found by W. S. Boston near the port area at Lampong Bay, in the early 1930s. (This area should be carefully explored, as it was an important landing place not only for Chinese traders but also for the Spanish galleons, at certain seasons.)

Workers.—Alexander Schadenberg, Wilfrid Turnbull, W. S. Boston, and others.

(*b*) *Nueva Ecija Province.*—(Stone-Age or other pre-Spanish sites have not yet been located; but a natural tektite site and some interesting Spanish period remains are worthy of mention):

Tektites.—Some two dozen true natural tektites were found about 1928, by E. K. Harper, in the area around and a little to the east of Balete Pass, on the Nueva Vizcaya border. Most of these specimens are now in the American Museum of Natural History (New York). They are not plentiful, but Harper is of the opinion that many more could be found there by diligent search.

A few transported tektites were found in 1938 in a gravel heap at Muñoz (said to have been brought from a river bed a few kilometers away). The original find was made by the late Fidel Mayson, but was not followed up and no further specimens have come from that area.

Porcelain-Age and Spanish period remains.—A few old and probably pre-Spanish porcelain fragments were found by myself and Mr. E. D. Hester in 1938 on a hill above Laur,—probably part of an old village midden. The grass-covered terrain and lack of time prevented any proper exploration.

Some interesting 17th and 18th entury jars and other ceramic pieces have come from around San Leonardo, doubtless being

all or mostly heirloom pieces. No specific burial pieces have been reported.

(Source of old Tinggian villages near Cuyapo, and their history, should be sought. Also, the 17th and 18th century mission sites at Puncan, Caranglan, and Pantabañgan should be further explored.)

Workers.—(As mentioned under the foregoing various items.) Also Luther Parker, Percy A. Hill, David P. Barrows, Epifanio de los Santos, and Dr. J. P. Bantug.

19. *Tarlak Province:*

(No Stone-Age or other prehistoric sites have yet been reliably reported from this province.)

Porcelain-Age finds.—A few scattered ceramic pieces and some jars of Yúan, Ming, or later dates have been reported as accidental finds or as inherited heirlooms; but no actual site has been recorded or explored.

Workers.—None. (See Addendum for data on caves, etc.)

20. *Pangasinan Province:*

Tektites and Pleistocene fossils.—Two interesting natural tektite areas have been located, one along the Zambales-Pangasinan border, and the other in the Bolinao area. The latter area produced the largest specimen (620 grams) yet known from the Philippines north of the Bikol area; also some unusually interesting large tektite disks. They were found by F. W. McCaw and J. Kershner, in the early 1930s. (For the border site, see Zambales Province.)

A completely fossilized elephant tooth of a probably unique dwarf species (but possibly merely a baby form of a larger species) was found before 1920 on Cabarruyan Island in Lingayen Gulf, near Alaminos. (It has been identified as an extinct form, and, a possible new species, of probably Late Pleistocene date, by Dr. G. H. R. von Koenigswald.)

Stone-Age remains.—A few used stone hammers and grip-marked stones of uncertain prehistoric dates (one being a large tektite) have been found in the Bolinao area.

Early Porcelain-Age site.—A very interesting ancient burial site was discovered by Mariano Dizon in 1928 near the town of Balincaguin, in the hilly region of the western part of the province. The site is in a recently cultivated area near a small spring, several kilometers from the present town.

The first find was a burial-jar, the top of which was accidentally struck by the plow. This was dug out, but found to contain only part of a skull and some bone fragments. Further excavation in the vicinity turned up many other burial-jars, together with a considerable number of smaller pieces of porcelain, stoneware, and pottery. It is also claimed that one of the jars contained several old coins, all having a square hole in the center and bearing Chinese characters. A dozen of the smaller whole pieces, and one of the coins, were later turned over by Dizon to H. P. Whitmarsh, of Baguio, who

subsequently took them to England where I believe they still are. Before leaving, Mr. Whitmarsh brought these pieces to me in Manila for examination. They all seem to be definitely Late Tang and Early Sung productions, somewhere between the 9th and 12th centuries.

In 1929 this site was visited by Victoriano Braganza, who later wrote an article about it.[3] He obtained a few more pieces, including a very early type of dragon-jar similar to those from the Hacienda Ramona Site in Pampanga Province. He also located a village midden site, on a neighboring hill, containing quantities of fragments of various Chinese wares. Everything that he describes or illustrates seems to be pre-Ming, and his interpretation of the site is entirely wrong.

This whole area should be carefully investigated when opportunity offers.

Later Porcelain-Age remains.—Two other pre-Spanish porcelain sites were found between Lingayen and Bolinao, in a canal that was being dug. One of them contained a unique Chinese jar of probable Late Sung or Yúan date, bearing an embossed European head similar to the designs on Roman coins. This specimen, and other early jars from both sites, were brought to me by the late Major Eugene de Mitkiewicz in April, 1929. A few other accidentally excavated pieces have been reported, but, so far, no Sawankhalok or other imported Southeast Asia wares are known from Pangasinan Province.

Another find that should have been mentioned above is that of a coin of the third century B. C., bearing a Greek design but probably of Celto-Iberian origin, which was found while doing road-work between Pozorrubio and Camp One, in the northeastern part of the province. This coin, of which an illustration has been published, was formerly in the collection of Dr. J. P. Bantug, and lost during the war. (An exactly similar coin was found in a garden at San Pedro Makati; see Rizal Province.)

Other protohistoric survivals.—Pangasinan offers rich archaeological possibilities for further exploration. The name Lingayen ("place of the *lingga*") suggests the former presence of a Hindu-Malayan community with phallic monuments, and elements in the traditional history and surviving myths support such possibility. The province has been the entry point for several of our ancient and more interesting cultures, and it seems very probable that remains of their former presence or passage here can still be found.

Workers.—Justo Claudio, Eusebio Rosario, Paz R. Reyes, Ricardo Sison, Carlos P. Romulo, H. O. Beyer, Leslie F. Taylor; and names mentioned under the foregoing various items.

21. *Zambales Province (present boundaries only; old northern Zambales being now a part of western Pangasinan, q. v.):*

Tektites.—Found in large number along the present Pangasinan-Zambales border. Also on two chromite mining prop-

[3] Philippines Free Press, August 3, 1929.

erties, in the foothills a little south of the border. What appears to be another natural site lies in the hills back of San Marcelino, near some copper mining claims formerly operated by Aguado Hermanos. (The Zambales tektites are all good natural specimens, with unusual form-characteristics that give them special interest. Plate 2, fig. 2.)

(No true Stone- or Iron-Age remains yet reported.)

Porcelain-Age remains and survivals.—One interesting midden site of Yúan and Early Ming date has recently been located by Robert B. Fox and Governor Francisco Anonas (June, 1947), on a small hill at the sitio of Purakin, near Ugik, on the old Cushman Ranch (now belonging to the Governor). Another similar site exists at Alibaiyan, near Ugik, but no fragments from this area were brought in. (Fox expects to explore the area more fully, soon; it lies only about three kilometers from the Villar Farm School.)

A few scattered ceramic pieces—all of Late Sung, Yúan, or Early Ming dates—have been reported as accidental finds, in several other Zambales areas (particularly near Botolan), but no definite burial site has yet been located or explored.

A few ancient beads have been occasionally found among the Zambales Negritos, and some were collected in 1913 by J. M. Garvan. Tradition speaks of stone arrow-points also being used among the Negritos in pre-Spanish times, but no trace of such material has yet been found.

Workers.—A. B. Meyer, W. A. Reed, Francisco Cañamaque, Fr. Domingo Perez (1680), J. M. Garvan, Paul Schebesta, Robert B. Fox; and (for tektites) Otto Frauendorf, Wilfrid Turnbull, Churchill Scott, and Herminia Gaerlan de Hernandez (for Babuyan Site).

22. *Bataan Province:*

Stone Age.—On the China Sea side of Bataan Province, particularly on certain sloping tablelands used for grazing, considerable numbers of protoneoliths of Bacsonian type (varying from crude to quite well-made specimens) have been found scattered over the present surface. Several collectors have gathered specimens, but no systematic exploration has been carried out. Four rather similar specimens were picked up by Leonardo Vasquez, in February, 1929, on a low ridge near the Lamao Agricultural Station, but no other stone implements, of either pre-Neolithic or true Neolithic types, have been recorded from Bataan Province.

Porcelain-Age remains.—A number of accidental finds of ceramic pieces, mostly of Late Sung or Ming date, have been made in this province; but no actual ceramic site has been located or properly excavated there. Some interesting early fragments have been picked up along the Manila Bay shore, particularly between Samal and Orani in the northeastern part of the province. (also see next item.)

Gold coins of the pre-Spanish period.—Several small button-shaped gold coins, usually bearing the embossed character "ma" in

the old syllabary, of types current in Java and Indo-China during the Hindu period, have been accidentally excavated in Bataan. Dr. J. P. Bantug has described a find of 70 such pieces, made in October, 1914, in the barrio of Tiis, Bagak municipality, and he had in his possession one of the specimens at the beginning of the war. This was a hoard, buried in an old clay pot which was accidentally plowed up and broken by a farmer named Alberto Ledesma. (These coins are exactly similar to another hoard buried in a pottery vessel near San Felipe Neri, Rizal Province, discovered in 1887 and described by Isabelo de los Reyes and Dr. A. B. Meyer. See later reference under Rizal Province.)

(All of the coastal area and nearby foothills in Bataan should be carefully explored, especially while the post-war reconstruction is going on. The Mariveles area should not be overlooked, despite the great wartime destruction there, as it was probably here that the first Chinese and foreign trade-centers were located.)

Workers.—A. B. Meyer, W. A. Reed, J. M. Garvan, E. B. Rodriguez, Major Albert J. Brazee, Dr. José P. Bantug, and Robert B. Fox.

23. *Pampanga Province:*

(No pre-Neolithic artifacts, and no fossils or tektites, yet recovered in this province.)

Neolithic remains.—A good specimen of a slightly trapezoidal Late-Neolithic chisel, and two other probable Neolithic artifacts of a cruder type, were found in plowed fields near the Hacienda Ramona ceramic site, but were probably in no way connected with that site itself. (A number of interesting used hammers, mullers, grip-marked stones, etc., were found in the ceramic site, but most of these are undoubtedly Porcelain-Age survivals from the Neolithic.)

Porcelain-Age remains and survivals.—The remarkable site at the Hacienda Ramona will first be taken up, after which several other miscellaneous finds, etc., will be treated separately:

Hacienda Ramona Site.—On this plantation, near Porak, there exists a remarkable and extensive Porcelain-Age site of an early type, known as the "Goodall Site," and first explored in 1935–1936 by G. M. Goodall and two Filipino assistants, working under my general direction. (The resulting collections are mostly in Manila.)

A more extensive exploration was carried out in 1939 by E. D. Hester, George Woods, and Herman Costenoble, assisted by Manager Suarez and certain other officials of Warner, Barnes & Co., who own the Hacienda. A large quantity of burial-jars, and of smaller ceramic pieces of various shapes and sizes, was obtained—most of which I saw or examined briefly from time to time. (A part of these specimens were sent to the United States, but the

great majority were, unfortunately, disseminated or definitely destroyed during the war.)

The site is large and at least three periods of inhabitation are identifiable:

1. An extensive burial area dating from Late Tang to Middle Sung (mostly with plain glazed burial-jars, exactly like the one from Calayan Island, mentioned under item No. 7, above.)
2. A village site and less extensive burial area, dating chiefly Late Sung and Yúan (with early dragon-jars, and similar objects).
3. A small village site, and possibly a few graves, dating from the beginning of the Ming period; located a short distance up the slope from the major site.

It also seems probable, from reports of plantation workmen and local natives, that several other as yet unworked burial sites exist in this vicinity.

In addition to the three types of burial-jars and associated wares the Hacienda Ramona Site presents certain features of special interest for ceramic study and interpretation—a few of which are: (*a*) The presence of large quantities of Yüchow and other southern Sung wares. (*b*) Several good examples of the rare *tobi-seiji*, or spotted celadon, associated with Ying Ch'ing fragments—one whole piece being in the form of an unusually well-made carabao (the glaze between the spots being a delicate translucent blue-green that is typically Ying Ch'ing). (*c*) The fact that no whole pieces and only two early fragments of blue-and-white ware have been found in the entire site (and these may be Yúan rather than Early Ming). (*d*) No identifiable Sawankhalok or other southeast Asia wares have yet been found, although some probable Tang black-glazed and apple-green glazed pieces and fragments closely resemble the Kalong wares of northern Siam. (*e*) Several uniquely fluted small teapots and wine-pots, of types rather unusual in Philippine sites, are worthy of special study.

The Hacienda Ramona Site is still far from exhausted, although many good ceramic pieces have been crushed and scattered by the use of heavy tractors and mechanical plows and cultivators on the plantation. Much of the exploration work in the past has been far from scientifically conducted—and, in the future, some small undisturbed areas should be fenced off and excavated systematically. The results might well settle some important points concerning the history of the site that are still vague or definitely doubtful.

Other Porcelain-Age sites.—The late Herman Costenoble, in 1940–1941 found two other Early Porcelain-Age sites on a sugar plantation some distance to the southeast of the Hacienda Ramona. (Shortly before he was killed during the war, he fur-

nished me with a map and some notes on these sites, as well as a number of midden fragments found in the vicinity. However, there was no opportunity for further exploration.)

Dr. José P. Bantug formerly possessed several very interesting ceramic pieces from Pampanga sites. One of these—accidentally excavated in the vicinity of Lubao while a well was being dug—was a medium-large Tzechow type of black-and-white decorated jar or vase, of a type heretofore known only from Site B in Rizal Province. He also had other pieces, both Sung and Ming, excavated in the Lubao area, as well as one or two from other localities.

On the whole, Pampanga, together with neighboring parts of Bulakan and Bataan, offers the best field for our next systematic exploration, and the work should not be too long delayed.

Workers.—(As indicated under the preceding various items.) Also Ricardo E. Galang, Sol H. Gwekoh, Cornelio Pabalan Byron, Luther Parker, W. Huse Chapman, H. O. Beyer, and Leslie F. Taylor.

24. *Bulakan Province:*

(Like Rizal Province, Bulakan probably contains practically all of our known archaeological horizons; but, so far, we have systematically explored only a relatively narrow strip along the Rizal-Bulakan boundary line. Our systematic explorations have been chiefly in the Marilao River Valley and along the Novaliches–Ipo Road, and throughout the rest of the province we have made only the usual type of casual or accidental finds. As the Marilao and Ipo Road finds have all been included in the regular "Rizal-Bulakan Collection," they will be discussed under No. 25 below, and, for the present, we will confine ourselves chiefly to the other Bulakan Province finds that are not included in that systematic collection.)

Tektites: (1) *The Pugad Babuy collection.*—The old Tagalog barrio of Pugad-Babuy (now known officially as "Torres Bugallon"), a part of Polo municipality, contains what is probably the world's largest concentration of natural tektites—certainly much the largest deposit yet discovered. More than 50,000 good specimens have been taken out of this site for my own collection, and probably around 10,000 more by other collectors. And there are still many more to be had in the area. In addition to the Pugad-Babuy Site proper, the Maysan and Karawatan areas are also included in the main collection.

(2) *Other Bulakan tektite areas.*—No other extensive natural tektite deposits have yet been found outside the Pugad-Babuy, Karawatan, and Maysan areas—although they may exist—but several secondary or transported deposits have been found. At two points along the road from Maysan to Novaliches, a few specimens have been found. Also, at three points in Meycauayan municipality Miss Natividad P. Noriega found a few specimens in old rice-fields—all showing signs of transport, or use as charmstones. No systematic search for tektites has yet been made in other parts of the province.

Pre-Neolithic stone artifacts.—In addition to tektites, portions of the Pugad-Babuy and Maysan areas contain a sizable quantity of Mesolithic obsidian and flint microliths, and a few undoubted palaeoliths have also been found in plowed fields within the tektite-bearing area.

A number of true palaeoliths found in the Marilao Valley will be included in the Rizal Province discussion, as also will be several small Mesolithic sites in the same area.

A few scattered specimens have been picked up elsewhere in the Province—mostly as surface finds—but none worthy of special discussion.

Neolithic artifacts.—All so far found (considerable numbers in some cases) have been within the systematic area—and will be discussed with the Rizal material—except the Ginyug Site, see No. 4 below.

Metal Ages.—One of our best combined Late Neolithic and Bronze-Age sites, and our third largest Early Iron-Age site, both lie directly on the Bulakan-Rizal boundary at Site H. No other pre-Porcelain sites have been found so far, outside the area of systematic exploration.

However, the largest Central Luzon iron-ore deposit yet known lies in the Angat-Norzagaray area, and it has been more or less continuously worked in a desultory way since early Spanish times. It seems quite probable that a pre-Spanish iron working may have existed in the area, but it has never been properly explored with a view to locating the remains of such an industry, and such a search should certainly be carried out at an early date.

Pre-Spanish Porcelain-Age sites.—The following pre-Spanish ceramic sites have been located (but very casually explored) in parts of Bulakan Province outside the area of systematic exploration:

(1) Dalawán barrio, San José municipality; 15th and 16th century porcelain and jar fragments, found by "Ario" de la Cruz in 1928.

(2) In June, 1929, W. S. Boston found seven 15th century ceramic fragments on a small hill at the site known as "Boston's New Mine," on the upper Santa Maria River, a short distance to the east of Ipo.

(3) In 1931 seven whole or nearly whole ceramic pieces, three certainly of Sung date and four others dating from the 14th to the early 16th century, were obtained from homesteaders who had accidentally excavated them on their lands in the area above the Ipo dam and around the headwaters of the Santa Maria River about 7 to 8 kilometers east of Ipo. (Collected by Feliciano and Islao directly from the homesteaders.)

(4) In June, 1934, a very remarkable site (but one quite difficult to get to) was found by a farmer named Isabelo Ramos at a place called Kinyug or Ginyug, on land owned by a certain "Doctor Araneta" about 6 kilometers east of the Novaliches–Ipo Road at Km. 35?

(Said to lie on Tialok Creek, about 5 kilometers above its junction with the Santa Maria River; and to be 3 hours walk from Site H, in a generally east or southeasterly direction.)

This Ginyug Site consists of at least two distinctive horizons: (1) an area of about one square kilometer containing only Early to Middle Neolithic stone artifacts; and (2) a strip along one side of the area—and comprising several plowed fields and a small hill or ridge—containing numerous common pottery fragments mixed with sherds of Late Sung, Yúan, and possibly Early Ming date.

The Neolithic area contains Luzon adzes (at least three were found) of Middle Neolithic type, associated with Early Neolithic adzes of more or less typical form, and some other interesting artifacts.

On the whole this site seems to demand further exploration at the earliset practicable date.

Decorated Manila-ware jars, and the like.—Five of our finest specimens of large decorated "Manila-ware" water-jars—of 16th, 17th, 18th century—have come from Bulakan barrios, where they have been preserved as heirloom pieces. Found chiefly in San José, Meycauayan, Polo, and one from Pugad-Babuy barrio. One plain Manila-ware jar also came from Bocaue. (All were manufactured at San Pedro Makati; see Rizal Province.)

Workers.—(As indicated above.) Also H. O. Beyer, W. S. Boston, J. P. Bantug, Fidel Mayson; and (for tektites) F. W. McCaw, Miguel Selga, Ralph Busick, E. D. Hester. [For further Bulakan data, see Addendum.]

25. *Rizal Province (including results of the Rizal-Bulakan Archæological Survey):*

Early period.—Prior to the year 1926, the chief finds made in Rizal Province and the Manila area had been as follows:

(1) In 1887 a small stoneware jar was excavated in San Felipe Neri, filled with small button-shaped gold coins—each embossed with the character "ma" in the old syllabary—of a type common during the Hindu period. Most of them were melted up or disseminated, but Isabelo de los Reyes obtained a few, one of which he gave to Dr. A. B. Meyer, who deposited an accurate cast of it in the Batavia Museum, where it probably still is.

(2) Around 1901 Felipe G. Calderon and Dr. David P. Barrows excavated two or more Sung-period graves in Santa Ana (see later Beyer-Boston notes on same site), and obtained some fine celadon and Ting-yao pieces—some of which were sent to the United States by Doctor Barrows and by Dr. Wm. Musgrave of the Philippine General Hospital.

(3) In 1908 a small Sung-type stoneware jar and a small celadon dish were found at a depth of about 4 feet in the bank of the Marikina River at the town of Montalban, by a woman washing clothes—the bank having recently partially caved down due to a storm.

(4) Early in 1920 four very interesting Late Neolithic stone adzes were found by employees of Aguado Hermanos—one from the hill at the top of a stone quarry at Binangonan, and three nephrite specimens while dredging gravel from the bottom of the Pasig (just in front of the Provincial Building at Pasig).

(5) In 1920 Contractor Charles G. Wing found two fossil bovine teeth (carabao) in a deep excavation in San Juan; while another fossil tooth found while boring an artesian well through the *tufa* in the same vicinity proved to be that of a prehistoric deer.

(6) An extensive hoard of 16th and 17th century silver coins, of early Spanish types used in the West Indies, Mexico, and the Philippines, was dredged up in the Marikina River (1914–1915), at a point a little below where the present bridge stands.

(7) In 1922 a very interesting Celto-Iberian coin of the 3d century B. C., bearing a well-preserved Greek design, was dug up in a garden near the Pasig River at San Pedro Makati. (The importance of this coin was greatly enhanced by the finding of another exactly similar specimen in Pangasinan Province, q. v.)

(8) About 1919–1923 Mrs. Robert M. McCrory and Hazel Clark Taylor assembled a remarkable collection of old Manila gold work (both pre-Spanish and early Spanish, in origin), including especially bead necklaces, earrings, finger-rings, brooches, hair-ornaments, and the like (it is to be feared that this collection was partly disseminated and the remainder destroyed during the war).

Period of systematic exploration (1926–1930).—(Stimulated by the discoveries at the Novaliches Dam, in February 1926, a period of active exploration was begun—later known as the Rizal-Bulakan Archaeological Survey—which ultimately covered about three-fourths of Rizal Province and nearly one-fourth of Bulakan. About 120 different sites were examined, and a few of the most important were explored extensively—others being explored in part only, with sections reserved for future more detailed work. The collections of this five-year period totalled nearly a half-million specimens, of which, unfortunately, about 75 per cent of the bulkier material wes destroyed during the recent war. Some specimens can of course be recovered from the Bureau of Science and Ermita ruins, but

they are all more or less damaged and the labels lost. Luckily, however, the full set of catalogues and field-notes was preserved, and a good cross-section of the entire collection still survives. Many of the rare specimens lost had been photographed and described in detail, and, although our negatives were lost, a fairly good set of file-prints still remains.

The Rizal-Bulakan area explored by myself, assisted by W. S. Boston, was divided into three main districts, known respectively as: I. Novaliches-Marilao; II. Central District; and III. Lake District. The collections for I and III were each kept as a single unit, but the Central District was subdivided into five smaller units, each with a separate catalogue. These subdivisions covered the San Juan River Valley, the Pasig-Tagig River Valleys, the Marikina-Puray River Valleys, the special Santa Ana Collection, and the Manila sites.

The various sites in the Novaliches-Marilao District were designated by single or double Roman letters, while those in the Lake District were designated by Arabic numerals. In the Central District the various subdistricts and sites were distinguished by the use of one or more key-letters in front of the number. For example, all Manila sites south of the Pasig River were distinguished by the key-letter "E" (because of Ermita being the first area explored); while, for convenience, those sites north of the Pasig River were distinguished by "EE–". Despite the great size of the collections, it was thus possible to avoid the use of very long numbers—which tend to be a nuisance and the source of frequent mistakes, in specimen handling. (As will be seen later, a still simpler system was adopted for Batangas Province—which was also applied to the Visayan Islands collections and to the Luzon tektite sites.)

It will be possible here to give only a very brief outline of the Rizal Province finds, and, for convenience, the three principal districts and the various subdistricts will be discussed separately.

I. NOVALICHES-MARILAO DISTRICT

A total of 29 separate sites were examined (some being divided into several areas), and they were designated A to Z, ZZ, YY, and XX, respectively.

Sites A, B, C, E, F, H, M, N, S, U, W, X, Z, and XX (14 in all) may be regarded as of major importance.

Sites D, G, I, L, R, V, and ZZ (seven in all) are of secondary, but considerable, importance.

While the remaining eight sites, J, K, O, P, Q, T, Y, and YY are of relatively little importance (although each has produced some interesting specimens or information), and may be disregarded in the present account.

The contents of the major and secondary sites may be indicated very briefly, as follows: (By horizons):

Early Palaeolithic.—Outcrops at Sites A, M, and X contain our oldest palaeoliths; associated with stegodon teeth and other fossils of probable Middle Pleistocene date, and in some cases with natural tektites.

Later Palaeolithic.—Scattered finds of other palaeoliths (mostly Pleistocene), and a few definite outcrops, occur particularly at Sites D, G, H, N-b, W, and XX. (Between Sites X and H, and again at Site G, there are pretty definite Late Pleistocene outcrops, containing numerous implements with recognizable characteristics.)

Mesolithic.—Sites G, I, Z, ZZ, and a few other minor localities, contain considerable quantities of pre-Neolithic obsidian and flint microliths (mostly early post-Pleistocene in date), and a few larger mesoliths. (Site Z is one of our best mixed Mesolithic and Eearly Neolithic sites, with practically no intrusion of material of either earlier or later date.)

Early Neolithic.—(Certain interesting protoneoliths, occurring at Site D and elsewhere, may be here regarded as a preliminary subclass.) The Novaliches-Marilao District contains the best and most extensive Early Neolithic deposits yet found in the Philippines, ranging in type from rather crude Bacsonian forms to fully ground axes and adzes of round or oval cross-section, and in date from about 4000 to 5000 B. C., down to 2500 B. C. or a little later. Sites A, B, D, F, G, H, M, N-b, S, V, W, X, Z, ZZ, and XX (15 in all) contain an Early Neolithic area or horizon, but only a few of them have concentrated deposits indicative of settlements. "Hospital Hill" at Site A, the western border of Site H, the eastern border of Site M, and parts of Sites D, G, N-b, X, Z, and XX, have produced the most and best specimens.

Middle Neolithic.—A few rare shouldered types, and a more numerous group of ridged (or "Luzon") adzes, are now recognized as a Middle Neolithic group (dating somewhere around 2000 B. C.), ancestral to the "tanged" and ridged adzes of Polynesia. Their distribution is sharply defined, covering a circumscribed but continuous area in three river valleys of the Rizal-Bulakan area (the San Juan, the upper Novaliches, and upper Marilao valleys), and a small area in Batangas Province. Sites D, G, H, M, N-b, S, V, W, X, and XX, have all produced good specimens of this type in small quantities.

Late Neolithic.—Plain-backed, transitional, and early stepped Late Neolithic adzes, chisels, and the like (all rectangular or trapezoidal in cross-section) have a wide distribution in Rizal Province, but are always very limited in quantity, and nothing like the rich deposits of Batangas Province has been found here. Sites A, D, G, H, L, M, N, V, X, and XX, have all produced one or more good specimens, the largest numbers

coming from Sites H, L, and X. Site L is purely Late Neolithic (long chisels, barkcloth beaters, early stepped adzes, and other tools) and seems like a spot out of the Batangas culture. No nephrite (jade) tools occur in this District; but green jade beads of the Batangas types have been found at Sites K and L.

Bronze-Age artifacts.—No bronze celts have been found in the Rizal-Bulakan area; but bronze ornaments, very similar to the Batangas types, have been found in Early Iron-Age graves at Sites A, C, and H, in this district, and at site 13 and elsewhere in the Lake District. (The Site 13 extensive deposit is probably truly Bronze Age, as will be hereafter indicated.)

Prehistoric Iron Age.—(*a*) Early Iron Age (2nd or 3rd century B. C., down to 3rd or 4th century A. D.); (*b*) Late Iron Age (4th to 9th century A. D.): Sites A, C, and H contained extensive and rich Iron-Age deposits, unmixed with any later material but only with earlier Stone-Age remains. All three localities contained Iron-Age burial grounds combined with village sites—and we excavated large areas at each site. We found that jewelry, weapons, tools, pottery, and other material were buried with the dead—and especially the graves of the wealthy or chieftain class produced objects of great interest, and often of artistic merit. The four great new industries were metal working, pottery making, glassmaking, and weaving. The latter art was discovered and studied through the existence of cloth imprints in the rust cakes of iron tools and weapons, placed in the same grave. Gold, silver, copper, bronze, and lead were all used to some extent, chiefly for ornaments. The early pottery is often covered with incised or perforated designs, and only the Late Iron-Age pottery is slip-covered and plain or with molded designs. Site C had most extensive Early Iron-Age deposit; Site A was about one-third Early and two-thirds Late Iron Age; while at Site H over three-fourths of the area was chiefly Late Iron Age.

In addition to the three sites already mentioned, Sites B, E, I, M, and possibly one or two others, had small Iron-Age deposits associated with later material.

Special Iron-Age jar-burial culture.—(About 3rd to 10th century A.D.?) Does not occur in the Novaliches-Marilao District.

Porcelain-Age remains.—(*a*) Early Monochromes (9th to 12th century A. D.); (*b*) Later Monochromes (13th and 14th centuries); (*c*) Ming period (15th to 17th century); and (*d*) Spanish period and modern.

(*a*) Part of Site B, Site E, and parts of Sites M, S, U, and W, all contain Early Monochromes in varying quantity. Part of Site B also contains a large cremation-type burial-ground, with several whole porcelain pieces in each grave. Site E is an old village site of Sung date.

(*b*) Sites B, M, S, U, W, and XX, all contain a stratum of Later Monochromes, sometimes mixed with or overlain by

Ming ware. (At Site B many Thanh-hoa and other Indo-China wares occur, as well as Chinese.)

(*c*) Site F is the best Early Ming-period site, dating mostly from the 15th century; but Sites M, S, U, and W, all contain some Ming material mixed with earlier monochromes. This whole district appears to have been largely depopulated during the Middle and Late Ming periods (16th and 17th centuries).

(*d*) Very few early Spanish-period remains have been found in this district, and it is not until the middle 18th century, or after, that extensive reinhabitation appears. Historic remains of 18th and 19th century date are found chiefly in parts of Sites D, J, K, O, P, and other less important places. Certain fragments of "Manila-ware" vessels, clay-pipes, and jars have the chief distributional interest.

(II. Central District: For convenience, discussion of the much subdivided Central District will follow the Lake District.)

III. LAKE DISTRICT

Seventy-one sites were examined, of which some 14 were excavated partially or extensively. The quality of the various sites may be estimated as follows:

First class.—Sites 5, 7, 11, 13, 15, 17, 22, 24, 34, 52, 54, 57 and 63 (or 13 in all). (Not all of such sites have been completely explored.) (Sites 13, 17, and 24 were most productive in specimen quantities.)

Second class.—Sites 2, 3, 8, 16, 21, 23, 31, 32, 33, 35, 36, 38, 42, 43, 45, 53, 56, 58, 68, and 71 (or 20 in all). These are good sites, but smaller; a few partly excavated. (All have contributed information of value.)

Third class.—Sites 6, 9, 10, 14, 18, 19, 27, 37, 41, 44, 48, 55, 59, 60, 67, and 69 (or 16 in all.) (These sites should mostly be further explored.) (Some important specimens have been obtained from all these sites.)

Of little importance.—Sites 1, 4, 12, 20, 25, 26, 28, 29, 30, 39, 40, 46, 47, 49, 50, 51, 61, 62, 64, 65, 66, and 70 (or 22 in all). (A few are worth further exploration.)

The contents of the above sites may be classified briefly as follows:

Palaeolithic.—Some early palaeoliths and natural tektites (but no important fossils) found in Sites 19, 24, 42, 53, 58, 60, and 63; good later palaeoliths in Sites 18, 23, 43, 55, and 57 especially.

Mesolithic.—Extensive deposits of pre-Neolithic obsidian and flint microliths, etc., in Sites 18, 21, 22, 27, 57, and 63; and less quantities in several other areas. (These Lake District Mesolithic sites are the best yet found in the Philippines—except, perhaps, the Kubao sites of the Central District, to be discussed hereafter.)

Protoneoliths.—Found in considerable numbers in the Tanay River Valley; see especially Sites 23, 38, 43, 54, etc.

Early Neolithic.—Scarce in the Lake District, except in the Baras and Pililla River Valleys; see chiefly Sites 17, 22, 24–b, etc.

Middle Neolithic.—(Typical ridged and shouldered specimens are wholly absent in the Lake District; but some interesting transitional forms between Early and Late Neolithic exist.)

Late Neolithic.—Adzes, chisels, and barkcloth beaters (horned), of fairly typical forms, are found in several widely separated parts of the Lake District, but in very small quantity. One nephrite chisel and three fully stepped adzes (similar to Batangas types) have been found. See especially Sites 19 (horned barkcloth-beater, etc.); 22, 23, 24–b, 34 (unique red stepped adze); 53, and 54 (well-stepped adzes); etc.

Bronze-Age artifacts.—One part of Site 13 has an extensive deposit of Bronze-Age jewelry, ornamental objects, and possibly fragments of a few tools, etc. (but no celts or spearheads yet found). Sites 11 and 17 also contain a few pieces of Bronze-Age type jewelry.

Prehistoric Iron Age.—Site 17, our largest and richest site in this district, contains a distinct Iron-Age horizon unmixed with other cultures; and Sites 3, 5, 7, 11, 24–c, and 36 all have interesting Iron-Age deposits, in contact with early Porcelain-Age cultures. In two or three other sites (see 35, 53, 59, especially), interesting fragments of Iron-Age jewelry and other artifacts have been found. (Sites 5 and 17 contain the largest quantities of Iron-Age beads; etc.) The Lake District Iron-Age deposits are mostly, if not wholly, of Middle or Late Iron-Age dates.

Pre-Spanish Porcelain-Age sites.—(*a*) Tang-Sung Early Monochromes; (*b*) Later Sung and Yúan Monochromes; (*c*) Early Ming-period wares (15th century); (*d*) Middle Ming ware (16th century):

(*a*) *Early Monochrome period.*—Parts of Sites 5, 7, and 17, especially. (Site 7 offers the greatest variety of early types—mostly from an old village midden, plus also a few graves containing whole pieces.)

(*b*) *Later pre-Ming monochromes.*—Sites 5, 17, 22; plus parts of Sites 11, 33, 36, and a few minor localities. (Site 22 contains one of the best assortments of later monochromes to be found anywhere in Rizal Province, and is almost completely free of any admixture of later material.)

(*c*) *Early Ming wares.*—Parts of Sites 11, 17, and 24, plus Sites 45, 53, and 55 are good examples, with several minor localities. (Site 24, in certain areas, contains the greatest quantities of unmixed material in village middens; while buried whole pieces have been recovered from graves in Sites 11, 45, and elsewhere, in small quantity.)

(*d*) *Middle Ming wares.*—Very large midden deposits of 16th century Ming wares, in great variety, are found in Sites 13 and 15, with practically no earlier or later wares mixed in. (Also parts of a few other smaller sites.)

Spanish period and historic remains.—(*a*) Late Ming and 17th century; (*b*) 18th–19th century and modern:

(*a*) *Late Ming and other 17th century remains.*—Site 16, for ceramic wares; Site 17, for beads, other jewelry, and miscellaneous artifacts; parts of a few other sites (especially Sites 8, 20, 56, etc.).

(*b*) *Eighteenth Century to modern.*—Sites 8, 9; parts of 16, 17, and 14; 25, 56, etc.

II. CENTRAL DISTRICT AND SPECIAL SITES

It will be most convenient to discuss each of the five subdistricts or special sites completely under its separate heading, but in a more generalized manner than was adopted for the other districts.

Although only about 20 sites have been allotted to the Central District, several of them were divided into several areas each, while the Manila sites (counted as a single group) were subdivided into a large number of special areas and subareas. (We here do no more than list them, with a very generalized indication of their contents.)

1. *San Juan River Valley Subdistrict.*—Eight original sites, numbered SJ–1 to SJ–8. Only SJ–3 and SJ–5 remained of permanent importance; although a number of good specimens were found in nearly all of the others (notably our best specimen of the Middle Neolithic "Luzon" ridged adze, from SJ–2). Four of the original sites were afterwards (during the 1931–1941 period) incorporated either with Manila or with the special Santa Mesa and Kubao sites, to be discussed hereafter.

Site SJ3.—Covering the townsite of San Francisco del Monte, this site contains three groups of interesting material: First, a large dome-shaped low elevation known as "Buck's Hill," containing an extensive deposit of Middle and Late Neolithic artifacts, consisting of a few fragmentary or damaged adzes associated with large numbers of much-used or worn flaked implements made both of obsidian and of tektite natural glass. (Arrow or dart points, drills, scrapers, small knives, and combination tools, are the commonest types.) Second, an area containing a considerable quantity of 16th and 17th century ceramic fragments (both imported and local), indicating a village site of that period. Third, a group of ruins consisting chiefly of early Spanish stone buildings, known to have been destroyed during the "Chinese rebellion" about 1640, and never rebuilt.

Site SJ5.—Known as "the Tuason Site," this place was apparently an ancient trading-station located at a much-used crossing of the San Juan River. There appear to have been Late Neolithic "stations" or small villages on both banks of the river, and along a small creek that enters the river at this point. (A few well-finished

rectangular adzes and chisels, associated with many flaked implements of obsidian, flint, chert, etc., are found.)

After the Late Neolithic there are no signs of occupation until the 15th century when another small village existed, chiefly on the west bank, until the Spanish occupation in the late 16th century, after which it also disappears.

2. *Pasig-Tagig Subdistrict.*—(Covering the whole area south of the Pasig River, through the Tagig Valley, and along the Lake shore through Bagumbayan and Sukat as far as Alabang.) Seven original sites, numbered PT–1 to PT–7. Only three of these (PT–2, PT–4, and PT–7) have been extensively developed, although a few interesting specimens have come from all (notably the three nephrite adzes mentioned on p. 231, par. 4, from Site PT–1).

Site PT–2: San Pedro Makati; (*a*) Greek-coin area (see p. 231, par. 7, already discussed); (*b*) Manila-ware kilns: Three kiln-sites of 16th to 18th century excavated, and large quantities of "Manila-ware" fragments obtained.

Site PT–4: Tagig Cemetery Area. Ancient village site and burial ground of Tang-Sung Early Monochrome period partly excavated, and many good fragments and a few whole pieces obtained. (Similar to Santa Ana.)

Site PT–7: Bagumbayan Site. A few Late Neolithic stone adzes and chisels, associated with large quantities of flaked obsidian and flint implements. (A large site, near Lake shore, occupying nearly a square kilometer of gently rolling hills and grassland.)

3. *Marikina-Puray Subdistrict.*—Three original sites, numbered MP–1 to MP–3. Of little importance as yet, except part of MP–2 ("Sung grave Area"; see p. 231, par. 3, *ante*). (This whole subdistrict warrants further extensive exploration, for which time has not yet been available.)

4. *Special Santa Ana Site.*—A special site, consisting of three areas some distance apart, covering a part of the location of the old Kingdom of Sapa, of pre-Spanish times. A special catalogue was set up for this collection, which is of good size and quality. The excavations included a few graves, an ancient shell-heap, and several sections of village middens. Area 1 was inhabited from the 9th or 10th century, A. D., down to the 14th century (under Empire of Sri-Vishaya). Area 2 was inhabited chiefly during the 15th and early 16th centuries (under Madjapahit and Brunei).

Many interesting objects were found in this site, that distinguished it clearly from all other sites except that of Tagig PT–4 above).

5. *Special Manila Sites.*—(Although properly included in the Rizal-Bulakan Collection, the Manila City area will in the

present paper be treated as a separate province, and as such will be discussed as No. 26 below.)

Later period (*sporadic exploration*, 1931–1941).—Minor additions were made to the Rizal-Bulakan Collection throughout the following decade, and a new series was begun for the Novaliches-Marilao District (distinguished by the key-letter "N–"). No other important changes were effected, but four new special sites were set up, the first two of which proved extensive and important enough to be each given a separate new catalogue:

1. *Special Santa Mesa Tektite and Archaeological Site.*—Discovered by Fidel Mayson in 1935, this soon proved to be one of our most important areas of exploration—and an extensive collection, totalling several hundred thousands of specimens, was built up during the following years. Contents include small numbers of Middle and Late Pleistocene palaeoliths, great numbers of tektites and pseudo-tektites, small numbers of Mesolithic and Neolithic artifacts, and limited areas containing Porcelain-Age deposits of late pre-Spanish and early Spanish dates. (Due to certain geological movements and changes in the area, a great deal was learned about the weathering and patination of tektites and palaeoliths under certain conditions.) As this site lies along or near the eastern and northeastern edges of Manila City, it was readily accessible and could be explored more or less continuously.

2. *Special Kubao Tektite and Archaeological Site.*—Discovered by myself, accompanied by Mr. E. D. Hester, in January, 1936, this ultimately proved to be one of our largest and most informative tektite and Early Stone-Age areas of exploration. It lies just to the east of the Santa Mesa Site, in the area then known as "New Manila" and now called "Quezon City." (The extensive road-building and real-estate development going on there, aided greatly the ease of our exploration.)

Here, for the first time, we found considerable areas of undisturbed geologic deposits—with both tektites and early stone-implement types in place. In the lower strata we found a few interesting Pleistocene palaeoliths in the same layer with undisturbed tektites, while in two layers above, we found a rich deposit of flaked mesolithic semimicroliths in an undisturbed stratum of red lateritic clay. The upper soil layers are mostly barren, and indicate little or no inhabitation of the area in Neolithic and later times—at least until the middle 18th century.

3. A small tektite and early stone-implement area, known as *Baesa*, lies just to the north of Manila, near the Rizal-Bulakan boundary. Contents similar to Kubao, but very much scattered and scarce. Further exploration is warranted, in some areas.

4. *The Navotas-Malabon Site.*—Navotas is a long, narrow, spleen-shaped island, in the municipality of Malabon and inhabited largely by fishermen. It is interesting ethnographically on account of the many types among the thousands of small watercraft that line the shores.

It is interesting archaeologically because of two facts: First, it appears to have been a landing-place or trade-center for Arab and Chinese merchantmen in the Late Tang and Early Sung periods (9th to 12th century A. D.); and considerable numbers of ceramic fragments have been found in certain sand-dunes along the shores. Second, the grounds around certain ancient ruins of Spanish stone buildings, near the south end of the island, have yielded many interesting fragments of 16th and 17th century ceramic wares—chiefly Chinese.

Further study, and some excavation, of the Tang-Sung ceramic-fragment area was interrupted by the war, and should be resumed in the near future.

Workers.—(As indicated under the preceding various items.) Main survey conducted by H. O. Beyer and W. S. Boston, assisted in various ways by Wm. H. Brown, E. D. Hester, A. V. H. Hartendorp, James V. Pappa, Gordon & Haley, Paul Mack, F. P. Domingo, Rafael Palma, and others.

26. *Manila City: (a) North of the Pasig River; (b) south of the Pasig.* (*a*) *North of the Pasig* (*key-letters "EE"*).—Twelve separate individual sites or areas explored, as follows:

EE–1: A Chinese building at corner of Pinpin and Dasmariñas.
EE–2: Cosmopolitan building site, near Sta. Cruz Bridge.
EE–3: Great Eastern Hotel Site, Calle Echague.
EE–4: Heacock building, corner David and Escolta.
EE–5: Insular Life building, Plaza Cervantes.
EE–6: Reyes (now Soriano) building site, Plaza Cervantes.
EE–7: Uy Yet building (China Bank Area), Calle Dasmariñas.
EE–8: Cu Unjieng building site, Escolta and Pinpin.
EE–9: Ideal Theater building site, Rizal Avenue.
EE–10: Trade and Commerce building, Calle Juan Luna.
EE–11: (Miscellaneous street excavations.)
EE–12: Santo Tomas University Campus ("Bill's Site"), España.

(*Contents:* Excavations for building sites proved very interesting and informative regarding the history of Manila. Accurate chronology worked out for downtown area, showing regular subsidence of around 14 inches per century. Good series of datable Chinese and European porcelains obtained in great quantity; also contemporary native and southeastern Asia wares. Some whole pieces found as well as fragments and sherds.)

(*b*) *South of the Pasig* (*key-letter "E-"*).—Fourteen separate individual sites or areas explored to some degree, and a few of them excavated extensively:

E-ESG: Ermita School Garden (Agriculture and Commerce building), Wallace Field.
E-LLT: Laong Laan Tennis Court area, Wallace Field.
E-LD: "Luis Dato" area, east of Tennis Court, Wallace Field.
E-WF: Wallace Field, in general.
E-IP: Calle Isaac Peral area (Taft to M. H. del Pilar).
E-UP: University of the Philippines Campus; especially area near Florida.
E-WB: Weather Bureau and Ateneo grounds.
E-BS: Bureau of Science grounds (and fishpond area).
E-MW: Manila Walls and Moat area.
E-WC: Various excavations inside Walled City.
E-PO: Post-Office building site.
E-MT: Metropolitan Theater building site.
E-CB: Colgante Bridge area (south approach, Quezon Bridge).
E-CH: New City Hall site.

(*Contents:* The Post Office, Metropolitan Theater, and Colgante Bridge areas were very deeply excavated, and produced enormous collections of interesting ceramic and other material from the old Chinese Parian of the late 16th and early 17th centuries. Little modern material, except in upper soil layers.)

The Ermita School Garden and most of the various Wallace Field areas lie on the site of old Bagumbayan—the "New Town" built in the last third of the 16th century by the Manila natives ejected from the pre-Spanish town by Goiti and Legaspi. Many interesting types of native pottery, "Manila-ware," clay-pipes, coins, beads, native jewelry, and other articles, have been found.

The Ermita area was probably made up largely of sand-dunes of various sizes, in pre-Spanish and early Spanish times. Some excavations show the remains of such dunes, and occasionally they contain interesting old objects, particularly on Isaac Peral, Florida, near the Weather Bureau (Ateneo), and the Bureau of Science. Deep borings for setting up telephone and electric-light poles have also often brought up interesting objects—along several streets in this area.

General history of the Manila area.—Results of our exploration indicate that downtown Manila was inhabited only from about 1480 or 1500 onwards. The really old part of the area lies up the River, and has been explored by our special Santa Ana Site—already listed under Rizal Province.

Workers.—H. O. Beyer, Anacleto Manuel, J. P. Bantug, G. E. Miller, Walter Robb, Salt and Heistand, C. Bauer, I. Cohen, Juan Nakpil. (For additional data see Addendum.)

27. *Cavite Province:*

Stone-Age remains.—Several plowed fields (mostly with red soil) along the main road to Tagaytay, and others near Indang, have produced small numbers of obsidian and flint microliths, while excavation near the Manila Hotel Site at Tagaytay Ridge produced a good Late Neolithic barkcloth beater. (A few other obsidian and flint microliths, probably of Neolithic date, were picked up along the trail to the Diesta Site to be described later.)

Possible Iron-Age site.—A thin layer of small sherds of common red pottery was examined in the back wall of a sizable excavation near the Van Schaick residence on Tagaytay Ridge. No associated objects were found, but the pottery itself is almost identical with the Early Iron-Age material from the Novaliches District sites. (This vicinity should be further examined, both for additional Late Neolithic remains and for possible Iron-Age artifacts.)

Porcelain-Age sites.—Only one important pre-Spanish site has been investigated—that on the Diesta Farm, in Pañgil barrio, about half-way between Amadeo and Indang, and accessible by trail only. About 10 whole pieces of 15th and early 16th century Ming wares were accidentally excavated when a sizable ditch across one end of the farm was being dug; and a later visit by E. D. Hester disclosed the presence of good midden fragments, from a nearby village site, being plowed up in the surrounding fields. One sizable piece of a 15th century Sawankhalok tall jarlet was also plowed up. Mr. Hester expressed the opinion that a ton or more of midden fragments might easily be gathered from the plowed fields seen by him in 1932.

Hester's original visit had been made from Indang, on horseback, but in 1940 he and I tried again to reach the site from Amadeo—going by car nearly to Pañgil barrio, and then on foot for several kilometers. We found the midden-filled fields now overgrown by tall grass and brush—as cultivation had been shifted to other fields—but we did gather a small bagful of fragments from two adjoining new fields. These appear a little older than the first finds, and indicate that the upper side of the village site began at least as early as the 14th century. (The whole area looks very interesting, and merits further exploration and search for other sites.)

Historic sites.—The whole Cavite coast, from old Cavite town as far south as Ternate, was the seat of important happenings in the Early Spanish régime (and before), and should contain important historical remains meriting exploration. (Also Buck's fire-walkers.)

Workers.—E. de Mitkiewicz, Robert L. Pendleton, H. H. Buck, E. D. Hester, H. O. Beyer, Tomas Tirona.

28. *Batangas Province:*

Next to the Rizal-Bulakan area, Batangas Province has proved to be the most important archaeological area yet discovered in the Philippines, and, as regards its uniquely rich Late Neolithic remains, one of the most remarkable Late Stone-Age sites found anywhere in the world. Our systematic exploration, lasting for nearly a decade (1932–1941), is now known as the Batangas Archaeological Survey, and has been recorded in a special catalogue running to some eight volumes. The area explored is a continuous one, covering a little more than 120 square miles—including practically all of the municipalities of Cuenca, Alitagtag, Taal, San Luis, Bauan, and bordering parts of Batangas, San José, and Lipa.

Before the results of the systematic Survey are taken up, finds in other parts of Batangas Province will be briefly considered:

Batangas finds outside systematic area:

In 1920 a tenant-farmer while digging a well near Lake Taal, inside Lipa municipality, found a brown-glazed Chinese jar containing a remarkable bronze image of Oriental type and rather crude native manufacture. Both jar and image appear to be definitely pre-Spanish, but of uncertain date (Early Ming or pre-Ming, apparently).

In February, 1921, three interesting stone implements were found by myself and Major Eugene de Mitkiewicz in a field near Tanauan, and Mitkiewicz also obtained a small Early Ming dragon-jar that had been excavated by a farmer in a field near Lake Taal. One of the stone implements was the first Middle Neolithic shouldered axe to be found in the Philippines; while a second was a peculiar sharpened small quartz disk of a type exactly similar to others later found in the Late Neolithic systematic area.

In 1934 I briefly explored the original Lipa townsite in Balete barrio destroyed by the great eruption of the middle 17th century. Interesting Middle and Late Ming midden material was found in several plowed fields, on a low ridge several hundred meters distant from the ruined church. A good-sized pre-Spanish village was apparently located there for at least a half-century or more before the Spanish occupation. A small Stone-Age community probably also existed—since in an orange grove on a nearby hill some 25 flaked obsidian implements were picked up. (The area should be explored further.)

Some time in the middle 1930s a Bureau of Science employee found two good stone axes and several pitted stone hammers in a barrio of Lemery.

In 1936, in the barrio of San Pedro of Batangas town, a creek running into an old river bed exposed several Early Ming porcelain dishes, buried at a depth of about 2 meters. The pieces were obtained by Melecio Arceo, of Batangas, and two of them were later brought to me at Manila by Miss

Remedios Abdon. They are blue and white 15th century Chinese pieces, in good condition. It seems evident that there is an Early or Middle Ming burial ground in this vicinity that should be further investigated.

In 1940 Pedro Malabanan, of Bulaknin barrio, Lipa municipality, found a fine specimen of medium-large nephrite Late Neolithic adze (plain-backed) on his farm; and later found two others of slightly different color and form. The first specimen was brought to me in Manila by Miss Emilia Malabanan, but the two others have not been seen. They are interesting as being the farthest north of any similar specimens yet found in Batangas.

Tektites.—In February, 1928, an interesting whole tektite was found near Ibaan, in a field also containing obsidian flaked implements and cores, and was sent in to the Bureau of Science for identification. In October it was turned over to me by the Director, after I had identified it as a tektite; and is preserved as our first recorded tektite specimen from Batangas Province.

Fr. Miguel Selga, who had seen the above specimen, started his weather observers looking for tektites elsewhere in the province, and they were able to find several in the barrio of Rosario, also in Ibaan. Some of these tektites were sent by Fr. Selga to Prof. A. Lacroix, of Paris, who had one of them analyzed, and in 1931 published a short paper on the Batangas specimens.

Other tektite finds from the systematic area will be mentioned later.

Batangas west coast.—Two areas have been explored on the west coastal area: (*a*) the Nasugbu-Lian area; and (*b*) the Calatagan Peninsula.

(*a*) *Nasugbu-Lian area:* In the early 1930s Anacleto Manuel found three good Porcelain-Age pre-Spanish sites in the Nasugbu-Lian area, and made a considerable collection of good midden fragments. Mostly the material is 14th and 15th century Early Ming, and is notable for having some Sawankhalok fragments mixed in. (Further exploration seems warranted.)

(*b*) *Calatagan Peninsula.*—In 1934, at the sitio known as Bolombató, on the Zobel Estate, there was partly exposed an ancient pre-Spanish burial ground of the 15th and 16th centuries—most of the graves containing whole porcelain pieces, jewelry, and utensils, as well as fairly well-preserved skeletons. In certain cane-fields, and in another area where the ground was being smoothed for a polo-field, the middens of two or more old village sites were also exposed. Here, in addition to much pre-Spanish material, there were also found Spanish-period objects (including coins) of the 16th and

17th centuries. Chinese coins of the Ming dynasty were also found. Most of the porcelain ware is undoubtedly of the 15th century, although some 14th and 16th century material is also in evidence (both Chinese and Sawankhalok types being found). Glass bracelets and beads predominate among the jewelry; also several gold objects are said to have been sequestered or stolen by the workmen. Some porcelain pieces were also disseminated, and some were kept by the Zobel family, but a majority of the material found was turned over by Mr. Enrique Zobel to the National Museum.

Ricardo E. Galang visited the site for the National Museum, and collected considerable midden material. He also found several Neolithic stone implements in the cane-fields. They mostly resemble the Late Neolithic adzes and chisels from the systematic Batangas area, but only one was stepped.

In 1940 Olov T. Janse, Swedish archaeologist, excavated nearly 60 graves in three different burial sites, in the Calatagan area, known as Pinagpatayan, Pulo Bakao, and Kay Tomás. A large collection of Early Ming porcelains, both Chinese and Sawankhalok, was obtained, as well as jewelry, weapons, utensils, etc., including spindle-whorls in female graves. Some bodies had been beheaded and in one case the head was replaced by a porcelain bowl. One grave contained a skull with gold-inlaid teeth, similar to those commonly found in cave-burials in certain Visayan islands. A few of the earlier graves might be of Late Sung or Yuan date, as they contained no blue-and-white wares. Near the Kay Tomás burial-ground, a few Late Neolithic stone implements were found in the ground.

Most of the Janse material was shipped to the Fogg Art Museum at Harvard, but a considerable number of pieces were kept at Calatagan by the Zobel family. (See Addendum for further data.)

The Batangas Archaeological Survey (1932–1941).—The first important site in the systematic area was discovered by the late Capt. F. G. Roth in the early part of 1932, while I was absent from Manila on a six-week trip to northern Indo-China and South China. Roth contributed greatly to our subsequent exploration, down to the end of 1937; and the results stand as a fitting memorial to his name.

The last collected lot of the systematic exploration was delivered in Manila on December 2, 1941—less than a week before the outbreak of the war. Luckily, 80 per cent of the Batangas material survived the conflict—and it stands today as our best single collection, and one of the finest of its kind ever made anywhere.

It consists of 232 separate deliveries or small collections, containing a total of 8,505 separate packages to each of which a single number was given (preceded by the key-letters "BM-"). The size of each package varies from a single specimen up to several hundreds, so that the total collection comprises more than a quarter of a million pieces.

Roth's original site, at Makulut barrio of Cuenca, contained only Late Neolithic material, but as our collecting ground spread gradually southward through Alitagtag and Bauan, and westward to Taal, new horizons began to crop up, and by 1935 we had a full Stone-Age series from Early Palaeolithic to the latest Neolithic and the Bronze Age. True prehistoric Iron-Age and early Porcelain-Age remains are very scarce—absent, in fact, from most of the systematic area, and where found are confined within very limited and definite boundaries. The true modern period begins only in the 14th or 15th century, from which time the population was continuous and gradually multiplying down to the Spanish occupation and after.

The Late Neolithic culture runs throughout the systematic area of Batangas, and was the basic characteristic of the largest and most widely distributed population. The other Stone-Age and later cultures are of much more limited extent, and crop up chiefly in circumscribed areas in different parts of the systematically worked region. The different horizons identified and their chief characteristics are hereunder briefly discussed:

Palaeolithic remains.—While several scattered early palaeoliths (mostly of chalcedony or quartz; see BM–858, BM–8387, etc.) had been picked up in the course of our collecting, it was not until the end of 1938 and beginning of 1939 that we located a true Palaeolithic site of definite Pleistocene date. We had noted for sometime that many flaked Mesolithic and Neolithic implements—especially those coming from the northeastern part of Taal municipality—showed large patches of older worked surfaces, as though they might be re-worked palaeoliths. But in the last lot for 1938 there came a package from a collector in Sampa barrio of Taal, containing whole specimens of Palaeolithic choppers, or handaxes, showing the original worked surfaces undamaged throughout This led to the discovery in that barrio of a true Late Pleistocene outcrop containing whole palaeoliths— and a brief preliminary exploration of it was made in 1939–1940. Tension leading later to war prevented our plans for more thorough exploration from being ever carried out, and the site still remains improperly investigated.

Mesolithic artifacts (chiefly of obsidian and fine-grained basalts).—Considerable numbers were found in certain parts of the Batangas systematic area. They are of two basic types, widely different in character: (1) A large type, showing some kinship to the Hoabinhian and Sumatra-type late palaeoliths of southeastern Asia; and (2) a class of semimicroliths (chiefly of obsidian and fine-grained basalts).

Natural and worked tektites.—Natural whole tektites have not so far been found inside the systematic area (although they occur in limited numbers in Ibaan municipality nearby); but cores and flaked implements of tektite glass are found in small quantity among both the mesoliths and early neoliths. They have probably been transported from Ibaan, or from some other more productive site not yet located.

Early Neolithic remains.—Most of the Early Neolithic axes, adzes, chisels, etc., so far found in Batangas show signs of reuse by the Late Neolithic folk. Some are merely repolished without change of form; but many others have been partially or wholly re-ground into approximations of rectangular-adze forms. Some have, in fact, doubtless been so thoroughly reworked as to conceal their origin; and have thus been usually classified by us as ordinary Late Neoliths. However, the total number of identifiable specimens is considerable, although forming only a small fraction of the true Late Neoliths. (One factor aiding identification is the material—since Early Neoliths are usually of andesite or schist, while true Late Neoliths are of harder and different stones.) This extensive reuse renders difficult any proper distributional studies; nevertheless from our work to date it is possible to state that the Early Neolithic culture was much less widespread than the Late Neolithic, and that it centered around certain definite areas rather widely separated. The original culture appears to have been quite similar to, and probably contemporary with, that found in Rizal-Bulakan. It is still doubtful as to whether or not the Early Neolithic folk had barkcloth beaters of stone; but they certainly appear definitely in the Middle Neolithic, although not fully developed and diversified until the beginning of the Late Neolithic period.

Middle Neolithic remains.—If the Middle Neolithic ever existed in Batangas as a separate period, it was certainly a short one and of quite limited distribution. Nevertheless, several very characteristic shouldered and ridged specimens of Middle Neolithic types have been found, and the few Batangas ridged specimens are even more definitely transitional to Polynesian and East Pacific forms than are those of Rizal-Bulakan. The stone materials used, however, correspond more closely to the Late Neolithic than to the Early—which is just the opposite from the Rizal-Bulakan Middle Neolithic. (It is possible that the actual mixing of the Middle with the Late Neolithic culture occurred on the mainland, as Heine-Geldern has already suggested, and the Middle type-forms appeared in Batangas with the first phase of the Late Neolithic, rather than earlier.)

Late Neolithic period.—As has already been several times indicated, the systematically explored Batangas area is basically a rich Late Neolithic site. The specimens collected run literally into the hundreds of thousands, and it will be possible here to give only a brief suggestion of the great variety of types

found. It is possible to identify certain chronological phases, which may be given separate consideration:

First phase: The early Nephrite Culture.—The first appearance of the Late Neolithic in Batangas is marked by the presence of large numbers of large and small adzes, chisels, gouges, groovers, awls, and other small woodworking tools, all made from ancient jade or nephrite, originally translucent but now usually altered into an opaque white material that ultimately disintegrates into a kaolinitic powder. (The original color of the translucent nephrite was usually white, or white streaked and clouded with green; but occasionally it appears in a mottled yellow to reddish brown, and rarely even as a greenish black. One altered mottled form is known as *agalmatolite*—and this also occasionally appears in our Batangas sites.) Other stone materials appear, but they are much less numerous in proportion. In the first phase, there are at least three nephrite artifacts to one of any other ground or polished stone material. (This qualification is necessary, for the reason that together with the polished and ground artifacts—throughout the Neolithic—there appear also numerous flaked implements of obsidian, chalcedony, and other materials, a microlithic or semimicrolithic culture doubtless carried over from pre-Neolithic days.) All polished artifacts of the 1st phase are plain-backed, without any shouldering, stepping, or tanging of the butt (except in the case of spearheads, which all have tanged or shouldered butts for mounting).

Second phase: Nephrite decreasing, and transitional types appearing.—Less than half the tools are of nephrite, somewhat better preserved, while grey and black stone specimens increase in number. Butts are now shaved or transitional in type—even a few of the nephrite specimens being so treated. Spearheads increase in number and variety, and stone barkcloth beaters are everywhere in evidence. A greater variety in size and shape of small wood-working tools, both of nephrite and of grey stone material.

Third phase.—Nephrite tools become scarce, but other tools increase in number and variety. Early stepped forms become the dominating types in adzes and chisels, practically all of grey or black stones, well polished. Increasing use of nephrite jewelry, mostly green.

Fourth phase: Hole-boring and sawing period; "Jade cult."—Fully stepped adzes of very hard stones shaped by sawing. Some with perforated butts. Jade (green nephrite) confined to jewelry and ornamental objects (beads, earrings, amulets, and some curious objects of uncertain use). Barkcloth beaters with sawn grooves. All tools finely polished. Stone saws and drill-points mostly of schist. Some religious (?) objects or ornaments.

Source and dates.—These Late Neolithic cultures all appear to have come over directly from Indo-China or South China to the Batangas coast; 1st phase, about 1500 B. C.? 2nd phase,

1000 to 800 B. C. ?; 3rd phase 800 to 500 B. C. ?; and 4th phase, 500 to 250 B. C. ? However, the fully stepped adze (possible only after the sawing technique was introduced) was apparently developed in Batangas itself, since it is not found in fully stepped form on the mainland, although a few rare specimens from Dongson and Luang Prabang (and one adze from Hongkong) are close approximations.

Bronze-Age remains.—A few characteristic Bronze-Age remains form a very definite and interesting phase of the central Batangas culture, but also present some features that are still a bit puzzling. We have actually found four whole bronze celts (closely similar to some found at Hongkong and at Dongson), fragments of several others, one large fragment of a bronze spearhead (like Hongkong), and a number of pieces of interesting bronze jewelry and ornamental objects (some of which are ear-pendants)—and, curiously, most of them were found in close association with transitional adzes and other stone implements of the 2nd phase (about 800 B. C.). The scarcity of these objects (and the absence of tin in Luzon, although copper is present and has been anciently worked) led us early to believe that they all came over from the mainland with the original migrators, and that a further supply was not obtainable.

Equally intriguing is the origin of the Batangas nephrite. The great quantity of artifacts found led us to seek diligently for some possible local source of the material, but the results so far have been wholly negative. In fact, the marked variation in the quantity and use of nephrite, during the various chronological phases, clearly argues importation and a gradually diminishing supply. It seems most likely, therefore, that both the nephrite and the bronze used in the Batangas-culture area were either brought from the mainland by the original migrators, or were imported during the entry of later culture waves.

Iron-Age remains and the use of pottery.—A considerable majority of the Batangas Late Neolithic areas contain no pottery fragments at all—and we are still of the opinion that if there was any entry of pre-Iron Age pottery, it could only have been with one of the later phases and in only a very limited way. (There is a rather curious kind of coarse-grained pottery, with incised decoration, found in certain areas particularly rich in green jade ornaments of the last Late Neolithic phase. However, these same areas contain some scattered Iron-Age and pre-Spanish Porcelain-Age remains— and the proper association of the red pottery fragments is still a matter of doubt.) Considering the fact that the Indo-China Late Neolithic sites, and those around Hongkong, all seem to definitely contain a pottery culture its general absence from practically all Philippine Stone-Age sites is a bit puzzling, but no more so, perhaps, than its equally complete absence throughout all of Polynesia. (This is an additional interesting fact, besides many others, that link the Polynesian and the Batangas-type cultures.)

Within Cuenca municipality, and in two or three spots on hills and gently sloping ridges just to the southeast of the town, small midden deposits of probable genuine Iron-Age date occur. They contain a few scattered beads, bracelet fragments, and pieces of iron artifacts, in addition to numerous thin potsherds similar to the Rizal-Bulakan Early Iron-Age types. This seems to indicate that once there were several Early Iron-Age graves on top of these hills—which are now almost bare of earth, most of the original grave material probably having long since washed away.

No other specific spots containing remains of Iron-Age graves or midden heaps have yet been examined by me within the systematic area—although a few individual Iron-Age type beads, and occasionally a few pottery fragments, have been brought in by collectors from other areas. Some of these spots should be systematically examined in the future.

Porcelain-Age and historic remains.—As indicated on p. 246 above, most of the ceramic material—which occurs in several widely scattered barrios—seems to date chiefly from the 14th to the 16th century A. D. In other words, most of the material is Chinese Ming ware or contemporary red pottery of native origin, with a very few Sawankhalok and other Siamese fragments mixed in. Other factors of a semihistorical nature, which need not be gone into here, have led us to identify the people who left these remains with an incoming Malay group from North Borneo through Panay—and at least one branch of them spread onward into the Lake District of Rizal Province, while still other branches went eastward into southern Tayabas and the Bikol Peninsula. This phase of Batangas cultural history should be made the subject of a special study, as these Bornean-Panay people were probably the ancestors of a large proportion of the present inhabitants of Batangas Province.

Workers.—(See preceding various items.) The systematic work was wholly by myself and F. G. Roth; assisted to some extent by E. D. Hester, Ralph Busick, Esteban Rosales, and many local collectors.

29. *Laguna Province:*

(Despite its interesting location and probable rich archaeological content, this province has scarcely been explored at all. A few casual finds, accidentally made, will be recorded below.)

Late in 1945, H. R. van Heekeren, a Dutch archaeologist sojourning here briefly on his way home from a Japanese prison camp, found some 25 or 30 flaked obsidian and flint semimicroliths (of the usual Rizal and Batangas types) on a cultivated foot-hill of Mt. Makiling a short distance east of the Calamba-Tanawan highway.

On April 6, 1929, the late Dr. William H. Brown and Major Simmons, on a trip through eastern Laguna, found in the edge of the town of Lumban some children playing with a curious

carved stone head. Upon inquiry they found that the children had dug it out of a freshly cut nearby roadbank, about 6 or 7 ft. high—and they had already damaged the features of the head somewhat by pounding it with another stone, and digging at the eyes with a piece of iron. Doctor Brown acquired the head, and brought it in for my colletion. The head is carved on the back part of an old stone mortar, a little larger than a shelled coconut. The carving is rather crude but interesting; obviously of native workmanship. Age uncertain, but possibly pre-Spanish.

No other Pre-Spanish sites have yet been located in Laguna Province, so far as I am aware.

Workers: (As indicated above.)

30. *Southern Tayabas Province (now "Quezon")*: (See No. 18 for northern half of province):

Five prehistoric sites of accidental discovery are known, and at least three of them have been explored to some degree—although none of them thoroughly:

1. *Burdett Late Neolithic Site.*—On January 15, 1921, Mr. F. D. Burdett found a small well-polished Late Neolithic adze at the foot of a natural gravel-bank near the landing of the Richmond Petroleum Co., at the southern end of the Bondok Peninsula. (He did not have time nor tools to explore the bank further, but thinks that other interesting objects might readily be found there.)
2. *Cabalete Island, Mauban.*—Sometime in the early 1920s, Dr. Maria Pastrana, of the University of the Philippines Botany Department, brought to my attention the existence of certain caves on this small island—said to contain numerous skeletal remains, portions of wooden coffins, and quantities of broken pottery, stoneware, and porcelain, all of pre-Spanish types similar to those found in the caves of the Visayan Islands. The island belongs to the Roces family of Manila; and some years ago a member of the family and some private collectors visited the spot and removed some of the better-class material. Doctor Pastrana states however, that there are still quantities of ceramic fragments and other broken objects there—and it should be explored at an early date.
3. On May 20, 1930, one of my collectors, named Sofia de la Cerna, reported the discovery of the Kamahagin Barrio Site, Gumáka municipality, and brought in four good ceramic pieces collected there (three being whole, and one a large fragment). All of the pieces are of 14th or 15th century dates, and the site seems to be an old pre-Spanish burial ground—located on a small farm near Kamahagin. At least two graves were accidentally dug into and there are probably many others in the vicinity. (As Sofia had to return to Cebu, no further exploration was carried out.) The site is especially interesting because of one Sawankhalok celadon and a good Chinese 15th century "hole-bottom" dish that turned up.

4. *James Wright Site.*—In 1939 James A. Wright found some interesting ceramic fragments around a recently built house at the barrio of Piris (or Perez), on the eastern side and near the northern part of Bondok Peninsula. He gathered up a small package of fragments, and brought it to me in Manila. The material indicates an early Ming settlement, similar in date to No. 3 above and in character to those found in central and western Batangas. (Perhaps a few of our North Borneo-Panay-Batangas folk moving eastward ?)

5. *San Narciso jar-burial site.*—The most important and extensive site yet discovered in Tayabas Province is that located in the hills and along the shoreline near the town of San Narciso, about halfway down the eastern side of the Bondok Peninsula. It was first reported (both to the University and to the Bureau of Science) in 1932 by D. Argosino, Jr., and Bayani Fontanilla; but was not seriously investigated until July–August, 1938, when Ricardo E. Galang, of the National Museum, explored the site and found a large number of very interesting jar-burials of early date. Several unusual jar-burial types were found—one of them being characterized by the use of a heavy grooved stone cover for the jars; apparently designed to keep wild pigs and other animals from disturbing them. Other jars were found near the seashore at a place called Recudo, and two were carefully excavated. Nine other jars are reported to have been excavated by the people here.

Six other jar-burial and midden sites were found in the vicinity—one being in a damp cave and three others near the seashore. The most potentially interesting is the barrio of San Andres, where many shell bracelets and several gold ornaments are reported to have been formerly dug up by the people. Galang found 6 shell bracelets, some beads, and several pieces of 14th and 15th century porcelains there (one piece being Sawankhalok). At another site called Tala, a glazed Chinese jar (early Ming ?), containing some bone fragments, was found. It thus seems probable that jar-burials of two or three different periods and types exist in this area—and further exploration should certainly be carried out.

Workers.—(As indicated under the foregoing various separate items.)

31. *Camarines Norte Province; (including also some data on Camarines Sur).*

(A good part of this province is still wild and undeveloped, and the interesting finds that have been made have resulted largely from two principal developments: (1) The Mining Industry: Gold, in the Labo-Paracale-Mambulao area; and Iron, in the Larap area. (2) Railroad and road building: Especially the new railroad line connecting Tayabas with Camarines Sur; and

various new roadways, especially the new highway connecting the Labo area with Tayabas.)

Tektites.—The region between Labo, Paracale, and Mambulao contains the largest and most spectacular tektites yet found anywhere in the world; and it also contains the largest quantity yet found in any Philippine area except Rizal-Bulacan. The two largest whole unbroken specimens found anywhere came from the area between Batobalani and Paracale, weighing 1,070 and 1,030 grams, respectively; and hundreds of specimens weighing above 200 grams have been found. Some of the most interesting specimens come from the deep gravel beds under the Malaguit and Paracale Rivers, and the largest existing collection was brought up by the dredges of the Coco Grove Mining Co. Their geologic age is certainly Pleistocene; and is probably actually Middle-Pleistocene, like all other Indomalaysianite specimens.

Stone-Age remains.—No true palaeoliths have yet been identified. One good medium-sized Late Neolithic plain-backed stone adze was found near Paracale; and several other Middle and Late Neolithic implements have been reported by prospectors and engineers, from the mining area—although I have not personally examined any except the one from Paracale, and two other rather roughly finished adzes from the Larap iron mining district.

Bronze-Age remains.—A number of interesting pieces of bronze and copper jewelry and ornamental objects (but no identifiable tools, implements, or weapons) were brought up by the Coco Grove dredges. Several of them are identical with Bronze-Age types from Batangas and Rizal-Bulakan.

Iron-Age.—(No true prehistoric Iron-Age site has yet been identified from this province, although certain reported destroyed remains along the new railroad construction suggest Iron-Age possibilities.)

Prehistoric Porcelain Age, and gold-mining.—Most of the reported ceramic remains in this province are around the older mining districts and along the new railroad and roadway constructions. The individual sites are numerous, and they can be grouped roughly into two distinct periods: (*a*) A 12th to 14th century period, containing only monochrome porcelains together with many interesting gold beads and other objects. (*b*) A 15th and 16th century period, containing Ming ceramic wares, native pottery and iron implements.

The older period centers around the Gumaos Peninsula and Mambulao, and many interesting old mine workings and tools have been found there also. A number of Late Sung or Yúan graves containing whole porcelain pieces have been cut into, particularly on the San Mauricio mining property and nearby. The Gumaos area contains the greatest number of ancient workings and tools. At Paracale the remains of the early period have been mostly washed into the bay, but many evidences

have been brought up by the gold dredges Hundreds of most interesting gold beads, of the same types found in certain gold areas of Mindanao and above all at the "Shauger Site" in Samar, have been recovered by the dredges.

The younger pre-Spanish period centers around the Paracale-Labo area; although many graves containing whole pieces of Ming porcelains, etc., have been destroyed along the new railroad line. Near the former offices of the Coco Grove Co., a good-sized midden area was found that doubtless marked the site of a pre-Spanish town, although part of it had already been washed away or destroyed by dredging operations, at the time of my visit. Ming and native ceramic wares were plentiful there, but not a single fragment of Siamese or any other southeastern Asia ware was found. The most interesting finds along the railroad line were between Sipokot and Libmanan—which area was apparently once thickly inhabited, although now mostly covered by second-growth forest. Many graves were cut into and destroyed, and most of the remains scattered or carried away by the workmen. A few of the better porcelain pieces, which I later saw, were collected by the engineers and one foreman. They were all good Chinese pieces of either 14th or 15th century date. The whole region along the middle Bicol River offers interesting possibilities for future exploration—whenever opportunity may be available.

Workers.—Capt. Thomas Leonard, George Kerr, Victor E. Lednicky, H. O. Beyer, J. B. Stapler, Harry L. Barr, Dion Gardner, Donald D. Smythe, John W. Willey, F. Kihlstedt, D. van Eek, and H. G. Hornbostel.

32. *Camarines Sur Province.*—(The region last discussed above, from Sipokot to Libmanan, lies properly in the northwestern part of Camarines Sur—but was visited by me in connection with a trip to Camarines Norte, and has thus been intentionally included there.)

Tekites have been reported from the Caramoan Peninsula, but I have never been able to obtain a specimen found there.

Stone implements.—Jagor found one Neolithic stone axe (or adze) imbedded in a piece of wood in a prehistoric shell heap near Libmanan. (Probably Late Neolithic, though he does not indicate clearly; the year was 1860.) He also mentions stone rat-guards similar to those found in Talim Island (Rizal Province), and in Ifugao, etc. E. Schneider also once told me of a Late Neolithic stone adze or chisel being found near the town of Pili.

Prehistoric Porcelain Age.—A large and carefully gathered collection of ceramic fragments was made in the cultivated area around Lakes Baao and Bato, by Luis Dato, in May, 1932—the best material coming from a place called Manolabak. The bulk of the material is 15th and 16th century Chinese with a considerable proportion of native pottery, including a number of pieces with incised decoration. A few fragments of earlier 14th century or Yuan wares are occasionally mixed

in. It is obvious that most of the material collected is from the midden-heaps of several pre-Spanish villages in this area.

The former collections of the National Museum, Dr. J. P. Bantug, and others, each contained a few Early Ming pieces (mostly 15th century) which had been accidentally excavated in Camarines Sur. Exact localities were seldom recorded.

Recorded in the literature, however, is a still more interesting series of sites. In 1851, while a road was being built at a place called Poro, a short distance beyond Libmanan, an extensive ancient shell-heap was uncovered, and later explored by the priest of Libmanan, an ardent student of natural history. The heap was covered by from 4 to 5 feet of alluvium, and in it and around it were found numerous remains of the early inhabitants. Both animal and human skeletal material, deer antlers, ornamental objects of bronze and brass, and a considerable number of whole ceramic pieces (chiefly of Chinese Sung types) were found. Also found were typical bracelets of red glassy paste, and other ornaments. (This appears to be a culture similar to our early Santa Ana type in Rizal Province.) Jagor himself visited the site in 1860, but had no time to excavate. He obtained one ceramic piece only, a crackled celadon of early Sung date. He learned, however, that equally old or perhaps earlier remains had been found in other shell-heaps near the mouth of the Bigajo River, not far from Libmanan, and that a burial-jar or urn containing remains of a human skeleton had been excavated as early as 1840 at the mouth of the Perlos River, a short distance to the west of the Poro site.

The Poro vicinity should obviously be reëxplored for other remains, when opportunity offers.

Workers.—(As indicated under the preceding various items.)

33. *Albay Province and Catanduanes Island:*

(No modern finds have been reported from Albay Province, although some interesting fossil beds have recently been reported from Catanduanes Island. Both areas are known to have been anciently inhabited, and offer excellent opportunities for archaeological research. Natural tektites have not been reported, but a number of Albay people are known to carry them as charm-stones. They have probably been obtained from Camarines or elsewhere—and small round or oval ones are said to command prices of several pesos each. A few whole porcelain pieces, said to have been accidentally excavated in Albay, formerly existed in the Bantug and other private collections. No specific records are known to me.)

Cagraray Burial Cave.—In the literature of the pre-American period, we have one famous archaeological expedition reported from Albay:

Some time in the period 1879–1881, Drs. J. Montano and Paul Rey, of Paris, accompanied by Juan Alvarez Guerra, then

Spanish governor of Albay Province, explored the great burial cave on the islet of Cagraray, off the Albay east coast. A large amount of skeletal material was obtained, including many artificially deformed skulls as well as considerable quantities of ceramic fragments and other material. Most of the specimens were taken to Paris, but Guerra retained a few of the skulls—which afterwards came with his collection into possession of the National Museum and the University. All of the latter were destroyed during the war, as were also Guerra's crayon drawing of the interior of the cave (showing the location of the various objects as originally found) and his holograph notes on the exploration. Dr. Carl E. Guthe revisited this cave about 1923, and doubtless recorded notes which are with the University of Michigan Collection. (All indications are that the original contents of this cave were very similar to many others later explored in the Visayan Islands.)

Porcelain-Age finds on Catanduanes Island.—In September-October, 1881, Alfred Marche, French scientist, visited a number of caves on Catanduanes—mostly without finding any human remains. However, on October 8, in the cave of Tailan he found five skulls and two probable 15th century blue-and-white porcelain pieces. (These were taken to France, along with his large collection from Marinduque Island, q. v.)

Workers.—(As indicated in the preceding items.) Also Mariano Goyena del Prado.

34. *Sorsogon Province (including also Burias and Ticao Islands):*

(Like Albay, this province has received little or no exploration of its doubtless plentiful archaeological resources, with the notable exception of the jar-burial culture to be hereafter discussed. In 1923 I sailed around the entire coast of Ticao Island, and a part of Burias and located a considerable number of potentially interesting burial-caves. No opportunity has since offered, however, to carry out the actual exploration.)

In the late 1930s Generoso Maceda, of the National Museum, made a brief exploration of an early jar-burial site at Pilar, located on a small bay in the northwestern part of Sorsogon Province. A total of 24 jars were excavated in three different sites, all inside the town limits. Most of them contained bone-fragments, preserved because of the sandy soil; as well as various other articles. Several jars contained glass and paste beads, and some contained iron tools or weapons (spearheads or dagger-blades). There was some evidence of cloth and other articles, long completely disintegrated. The jars themselves are of poorly baked earthenware, and many were crushed or partly disintegrated. (The age of this site, based on other similar jar-burial finds, may be roughly estimated as being in the earlier centuries of the Christian Era—between 300 and 800 A. D.)

Workers.—Generoso Maceda, H. O. Beyer, and others.

C. CENTRAL PHILIPPINES (CHIEFLY THE VISAYAN ISLANDS)

35. *Marinduque Island:*

(Marinduque enjoys the distinction of having been more thoroughly explored archaeologically in pre-American times than any other Philippine island. This is attributable to the energetic Frenchman, Alfred Marche. Little has been done there in later times, despite the great interest of the field—but the greater part of Marche's large collection is still preserved in the Trocadero Museum in Paris.) (Also in the Natural History Museum?)

In April, 1881, Alfred Marche began a systematic exploration of the burial-caves of Marinduque and, although the work was rather unscientifically carried out, collected a great deal of valuable information as well as a considerable collection of actual specimens from the caves.

The first period covered the examination of several burial-caves to the southwest of Boak—the finds consisting chiefly of many rough earthenware and semistoneware burial jars containing more or less disintegrated bones. (This group appears to be essentially the same as that of the Pokanin caves of Mindoro—and is probably a true and rather ancient jar-burial culture, similar to finds at San Narciso, Tayabas; Pilar, Sorsogon; and others from Samar, to be hereafter described.)

The second period covered a much richer group of burial-caves and niches on the Islet of Tres Reyes, near Gasan; but damage by the waves and by cave-ins was considerable. A great number of skulls (mostly deformed), fragments of burial-jars and urns, fragments of small carved wooden coffins, shell bracelets and rings, and several other articles, were found in three separate burial sites. The best cave was located in a very rough rocky area, some 70 meters above sea level.

The third exploration was that of a land burial-site, uncovered in building a road (very like a similar site in Samar). Here two plain greenish yellow-brown or yellow-green glazed burial-jars were found, partly crushed and each covered with a plate or bowl, each containing an earth-filled skull. Inside one of them, a small tall jarlet or pottery bottle was found, containing two interesting gold ornaments made of small pellets welded together (see similar Cebu, Samar, Paracale, and Mindanao types). Also several good-quality red-brown carnelian beads.

The fourth exploration (in May, 1881) was in the vicinity of Santa Cruz, in the northern part of the Island. Here 13 skulls and a number of good jar fragments were obtained from the "Bathala" cave; and a few small jars and dishes, and a number of coffin fragments, from various rock-crevices to the east-southeast of Santa Cruz. At last, in that area, between the 8th and 10th of May, the best find of all was finally made.

The fifth exploration was devoted to this prize of all archaeologists, the fine undisturbed burial-cave known as *Pamine-Taan!* (Located some distance around the mountain from the hamlet of Bonléu, to the east-southeast of Santa Cruz.) Of the actual exploration, Marche says:

"the entrance is a kind of low hole—but, squeezing through the rocks there, I suddenly found myself confronted by a row of coffins placed one on top of the other. At last, here was a burial cave intact! . . . I forbade my assistants to touch the slightest thing—for I reserved to myself the task and the pleasure of opening everything." But, after trying himself to lift one of the heavy hardwood coffins but not succeeding, Marche had his men lift out the coffins of the front row, and carry them one by one outside. "Behind the coffins stood large urns or jars, also containing skeletons." Some of the coffins were decayed, so that they could not be moved without losing part of the skeletal material. However, by dint of much care, the contents of each coffin was kept separate from the others—and they were gradually all removed. The largest coffin was 90 cm. long by 20 cm. wide and 15 cm. high. Many coffins contained an additional skull, usually smaller than the one properly belonging with the skeleton.

Many ornaments were found in the coffins and jars (Marche illustrates 5 types of gold ornaments; 3 types of shell and tortoise-shell bracelets, etc.); but very few beads occurred in this cave.

One curious feature of these burials was the fact that the lower jaw was frequently detached, and placed in the opposite end of the coffin from the cranium. Marche believed that the bones had always been placed in the coffins and jars after they had already been cleaned and dried—perhaps some time after a preliminary burial.

Numerous small porcelain objects were found among the bones in the coffins—including small plates, saucers, small vases and flasks (some of stoneware), etc.—and, rather curiously, no two seemed to be alike, but all differed in form, design, size, or material.

Most of the large burial urns, back of the coffins, had the mouths closed with a whole or broken plate, serving as a cover. Several jars were broken, but one very fine specimen was in perfect condition—being glazed over the whole body except the base, and decorated with two fire-spitting dragons with four claws on each foot. Other jars were mostly plain, and either brown or black-glazed. The contents were similar to those of the coffins, but usually of better quality. Each jar usually contained from two to four gold ornaments, but beads were scarce. Two copper or bronze earrings and one finger-ring were found. One iron dagger-blade or knife, one small axe (both rusted to the point of disintegration), and a hardwood spearhead, were also found.

Some of the coffins were empty,—but altogether some 40 skulls and about a dozen complete skeletons were obtained from this cave. Most of the skulls were artificially deformed. Three full days were spent in the exploration.

A sixth exploration was made at the cave of Macayan. Here only five deformed skulls, and numerous pieces of broken jars, etc., were found, as the place had been invaded by treasure-hunters and everything was broken up or looted. Marche also learned here of other caves that had been completely looted, but did not visit them.

A seventh exploration was carried out near San Andrés, on the north coast, and near the barrio of Balinakan. On May 20th seven caves, and on May 21st five caves, were visited, but only broken jars and fragments and a few scattered bones were found. Later, several other places were visited without any important finds—in the neighborhood of Boak—around the end of May and beginning of June.

An eighth important exploration was carried out, from the 5th to the 12th of June. On a small hill near the shore, in the neighborhood of Gasan, some workmen building a new road had uncovered several burial jars at a depth of about 5 to 6 feet. Five jars were broken up by the workmen before Marche's arrival. As the prospects seemed good, he planned a systematic excavation, to the right of the road, which lasted for seven days. On the third day two earthen jars were found, each containing a skull, a small jarlet or vase, and some beads. On the fifth day, one glazed dragon-jar (with 4 claws) was found. On the sixth day a jar containing two skulls (one being that of a child) was found imbedded in the roots of a tree; containing also 4 bronze rings, a large quantity of small beads, and two gold ornaments in the form of stars. On the seventh and last day another dragon-jar of the same type as those dug previously was also found wedged between tree roots. (This jar and some other Marinduque specimens were later deposited by Marche in the Museum of Madrid.)

After an abortive trip to the eastern part of the Island in the middle of June, Marche, accompanied by his friend Berdote, secured a boat and made a sailing and rowing trip clear around the Island. Many looted caves, crevices, and rock-shelters were found to contain scattered bones and ceramic fragments, but it was not until June 25th that the first real find was made. On this date, one kilometer inland from Castillo de Figui, a place where many buried plates, jars, etc., had been found, was visited, Marche obtaining three of the plates, and also finding some carved wooden images (very like Ifugao or Igorot workmanship) in a nearby cave.

On June 27th, at Balakassa, ten skulls, several good pieces of burial-jars, and (in the cave of Lugukan) a very large broken plate, were obtained. On the 30th they arrived again

near Bonleu, only one kilometer from the famous cave of Pamine-Taan. Here Marche made some additional searches and diggings, finding, among other things, under a layer of guano, two carved coffin lids and bodies, many ceramic fragments, etc. On one of the coffin lids a large iguana was carved, with denticulated tail; while on the other lid were two iguanas with backs toward one another, and with their heads passing beyond the cover and serving as handles to carry the coffin. (Similar specimens were found in northeastern Panay by Merton L. Miller and Luther Parker, in 1912.)

Finally reaching Santa Cruz on July 3rd, with a big storm brewing, the return was made to Boak overland on the 4th. Packing his numerous collections carefully, Marche left for Manila on July 12th, and later back to France, with everything intact. (Thus concluding the most successful Philippine archaeological expedition recorded from Spanish times.)

Other Marinduque finds.—Around 1900–1901 Dr. T. H. Pardo de Tavera obtained several interesting whole ceramic pieces, all said to have come from burial-caves or niches in Marinduque. I examined these (and others in his collection), and photographed many of them, about 1923–1924. Especially interesting were two good Sawankhalok celadons, and a large Yuan or Early Ming celadon dish about 14 inches in diameter. All the Marinduque pieces were between the 13th and 15th centuries, in date.

University students from Marinduque have furnished me with interesting notes on several caves there, said to still contain bones and ceramic fragments. Doubtless other profitable explorations can still be carried out in so rich a field as Marche's work indicates. (No Stone-Age remains or tektites have yet been reported from this Island.)

Workers.—(As indicated in the preceding items.) Also Eduardo Palma.

36. *Mindoro and the Lubang Islands:*

(No true Stone-Age remains or tektites yet reported. In March, 1929, what appears to be an early Iron-Age site was uncovered when a new road was being built from the beach to the town of Calapan. The find was made about a half kilometer along the road from the usual landing place, and consisted of several interesting native pottery vessels, some strange looking gold ornaments, and other objects. One whole small pottery vessel was brought to me by Leovigildo V. Monasterial—but he feared that all the others, and especially the gold ornaments, had been carried away by the workmen or destroyed. The piece brought to meis definitely related to our Early Iron-Age wares—particularly such as are found in the Visayan Islands, etc. (See decorated angle-pot from northern Negros, etc.)

In 1904–1905 Dr. Fletcher Gardner explored some very interesting caves at Pokanin, and made a considerable collection of

skeletal material and jar fragments there for the Philippine Museum. The principal Pokanin cave is high in a cliff-side, between Bulalacao and Mansalay, in the southeastern part of the Island. A large number of skulls and other skeletal remains, together with many large broken burial jars, were found in this cave—although the material was already badly mixed up and disturbed when first found. No porcelain fragments were seen (although there were a number of native potsherds); and it appears that this site is one of the older types of jar-burial—similar to Pilar, Sorsogon; San Narciso, Tayabas, two of Marche's sites near Gasan in Marinduque, Guthe's Samar site, etc. (This estimate is borne out by Gardner's photographs, and by the jar-fragments formerly in the Philippine Museum; etc.)

A number of celadon dishes, mostly of Yuan or Early Ming types, have from time to time been brought to Manila by mining men, hunters, and others, who obtained them from Mindoro natives, chiefly from the west coast (and two or three that I have seen from the Lubang Islands). They all seem to have come from accidental excavations in fields, or in house-building, etc., and no definite productive burial-sites have been reported.

The only spot where definite midden and cave remains of this type have been explored is on Ilin Island, a little distance to the southwest of San José. Several people have made explorations there, and the best material was doubtless taken away long ago; but I have a fair-sized collection of midden material made in two places there, by G. M. Goodall, in the middle 1930s. Also a much smaller lot, collected from a cave in the center of the island by Capt. E. S. Ross and Col. J. L. Hitchings in 1946. The porcelain fragments are all 14th or 15th century; but they are mixed also with many native potsherds, pieces of human and animal bone, and a few fragments of disintegrated iron tools and weapons, which may or may not be contemporary. (The site probably belongs to the same culture as the Calatagan Peninsula area of Batangas Province, and many other spots in the islands to the east and southeast of Mindoro.)

The pagan Mangyans of southern Mindoro are still using one of the two syllabaries of Indian origin that yet survive in the Philippines, inscribing it chiefly on cylinders or tablets of bamboo. It is probable that other interesting culture elements have survived along with the syllabary—which lends additional interest to the extensive study of Mangyan culture, writing, and literature now being carried on by Harold C. Conklin, in connection with this Institute.

Workers.—(As indicated under the preceding various items.) Also Merton L. Miller, Victor E. Lednicky, E. de Villa, Paul Schebesta, and others. [For additional data on Mindoro, see Addendum.]

37. *Banton Island (part of Romblon Province):*

In the spring of 1937 an interesting undisturbed burial-cave, not previously known to the people, was discovered in the sitio of Guyangan (about 1 kilometer from the town of Jones). The cave was almost completely looted by the Jones citizens in a wild search for buried treasure—graphically described by C. Faigao in the Philippines Free Press, issue for July 31, 1937.

The cave is located about 32 meters above sea-level, in the side of a high cliff, and could only be reached by a descent of some 10 to 12 meters from the cliff top. Entrance was gained through the aid of a rope tied to a tree on the cliff top. Faigao states that some 40 wooden coffins, in various states of preservation, were found. The number of whole porcelain dishes, small jars, flasks, saucers, and other pieces obtained was considerable, and 12 gold ornaments were also found (some of the latter by excavating a portion of the deposit on the cave floor). Some of the dried and better preserved coffins were found to be ornamented by a crocodile or lizard design, others showed only the head of a crocodile, while one had the figure of a kneeling man. Some of the smaller coffins contained only two skulls, while in others the bones appear to have been originally wrapped in something resembling abaka cloth. (All of this shows close resemblance to Marche's interesting Pamine-Taan cave in Marinduque.)

E. D. Hester later obtained 10 of the Banton pieces for his collection. They are all Chinese wares of the 14th and early 15th centuries. No Sawankhalok or other southeastern Asia pieces appear in the lot. None of the gold ornaments have been seen by us, and it is to be feared that most of them were melted up and sold by their finders.

No other archaeological finds have been reported from Banton.

Workers.—(As in the foregoing.) Also Gabriel F. Fabella.

38. *Romblon Island (part of Romblon Province):*

(Romblon is the most thickly inhabited island of the group of the same name, and numerous casual finds of interesting specimens are reported among the natives there, but unfortunately very few have survived or been examined by a qualified observer. Certain caves have been reported to contain jars, dishes, and jewelry, as well as bones but so far I have an accurate report concerning only two of them—see the following.)

In 1929 a former assistant of mine, Tomás Maglaya, while on a hunting trip in the interior of Romblon, found an interesting cave in the barrio of Lio, and another one nearby (probably in the same barrio). Maglaya states that both caves are full of porcelain and stoneware fragments, as well as many scattered skulls and other skeletal remains. Due to the nature of his trip, he was able to carry away with him only two

jar-fragments, both of which he later brought to me in Manila. They are both good-sized pieces of 14th century Early Ming dragon-jars of the best types, with designs cut in high relief and the dragons having four claws on each foot. One is a pure yellow-brown, while the other is greenish-brown glazed.

Workers.—(As in the foregoing.)

39. *Tablas Island (Romblon Province):*

(This island is the largest of the Romblon Group, but is rather thinly inhabited. It has been the scene of several interesting archaeological finds, which will be listed separately below.)

In February, 1923, Edward H. Taylor, while collecting herpetological specimens for the Bureau of Science, came across some interesting archaeological remains and made a small but good collection for my benefit. On a headland near Odiongan. he found a spot where a cave had probably formerly existed but later caved in, leaving many skeletal remains, ceramic fragments, and other objects scattered among the rocks. Taylor counted 30 skulls, more or less whole; a large quantity of ceramic fragments; a few pieces of much-decayed wooden coffins; some strange ornaments; and a few pieces of disintegrated iron tools and weapons. He believes that many other specimens were covered by the fallen rocks, some of which are of large size.

He brought back for my collection two good skulls (one artificially deformed), 2 iron weapons, 72 ceramic pieces in large fragments (of which eight are nearly whole), and a few smaller potsherds. For himself he kept only a curious amulet of copper or bronze (of which he gave me a drawing), with a small ring at the top, rather similar to some specimens from site 13, Rizal Province. The ceramic wares, in addition to fragments of dragon-jars and common red pottery, consist chiefly of 15th and 16th century Chinese blue-and-white deep dishes, plates, saucers, small jarlets, bowls, etc. (It is probable that many other objects could be obtained at this site, especially by excavating under the larger fallen rocks, etc.)

Another site, further inland on a small farm near Odiongan, was brought to my attention by a former student of the University of the Philippines. This appears to be a village midden, possibly accompanied by early land burials. Some interesting fragments of native pottery, bearing curious incised designs, were brought in, but many other objects are reported to have been found there, which I have not seen.

Subsequent finds of skulls, jar-fragments, and other material, have been reported from three different localities on the eastern side of Tablas; but I have not yet been able to examine any of the material, some of which I fear was destroyed during the recent war.

Workers.—(As in the foregoing.) For further data on Tablas see Addendum.

40. *Sibuyan Island* (*Romblon Province*):

(Now the most heavily forested and mountainous island of the Romblon Group, but once apparently much more thickly inhabited. Ancient remains have been found in several places, on which I have the following notes:)

An American mining engineer, who formerly lived several years on this island, states that he had from time to time run across a number of caves containing celadon dishes, pieces of wooden coffins, beads and fragments of glass bracelets, and large quantities of bones, jar fragments, and other sherds of ceramic material. He usually did not disturb them, due to the fear and respect with which the local natives regard such places, although he had a few times taken some of the objects to his house, whence they had either been carried away by visitors or been lost, or sometimes been returned by his servants to the cave again.

On April 21, 1930, another mining man, Mr. W. G. Carpenter, brought me a few ceramic fragments that he had found on the west bank and near the mouth of the small river which comes out at Magallanes barrio. Two are fragments of black-glazed Early or Middle Ming jars, but the other sherds are mostly of 19th century or modern wares of the late Spanish period.

(No Stone-Age or Early Iron-Age sites have been located.)

Workers.—(As in the foregoing.)

41. *Masbate Island* (*now also a province*):

(Due to the extent of ancient and modern mining activities, with resulting frequent visits of geologists and explorers—and to the extra large number of Europeans and Americans living in the Island from time to time—it is not surprising that Masbate shows a considerable number of archaeological finds. Actually, however, very few of the numerous accidental finds have been followed up and systematically explored; and this Island remains one of our potentially most interesting archaeological fields, awaiting proper systematic exploration of the entire terrain. A few of the more important reported finds are listed below:)

Warren D. Smith's finds at Batuñgan Cave.—The Batuñgan Caves (mistakenly named "Batwaan" in published account), in northwestern Masbate, were described in the Philippine Journal of Science [*19* No. 2 (August, 1921) 233–241, plus 5 plates], by Warren D. Smith. One of the four caves examined, in a huge limestone massif, is undoubtedly a burial cave containing some 44 skulls, a large quantity of other loose bones, a narrow wooden coffin or skull-box with carved crocodile-head handles, a smaller and much disintegrated head-box, and two Neolithic stone implements. The largest of the caves is described as a "Living-cave," and contained remnants of fireplaces, pottery stoves, and numerous fragments of potsherds, some with incised decoration. Deer-teeth and teeth and bones

of other edible animals, shells of edible clams, etc., were also numerous. A large piece of a shell bracelet was also found.

The two stone implements are very interesting. One is an Early Neolithic adze, probably repolished in later times; while the other is a Middle or Late Neolithic chisel of felsite or andesite, well patinated. Three other similar implements had been taken from these same caves by Mr. Wilson, an American lawyer owning a ranch in the neighborhood, prior to Smith's visit. For details, see Addendum.

Many of the skulls in the burial cave were artificially deformed. Smith took only two, but most of the remainder were removed in 1923 by Dr. Carl E. Guthe, and added to the Michigan collection. All existing evidence indicates that the burial cave is Porcelain Age, probably Yuan or Early Ming, in date.

Bernhard Radtke's early and later finds.—As early as 1912 B. M. Radtke, a German owning a large cattle-ranch in northern Masbate, reported to the Bureau of Science his finds of burial-caves, burial niches, and land-burials along the coastal region of that area. He brought to Manila a very artistically small carved head-box, several jars, porcelain pieces, and other objects, found in some of these burials. His collection was not acquired by the Bureau, owing to the prohibitive price demanded. (Some of the specimens were later acquired by Dr. Carl Guthe, and went to the Michigan museum.)

In September, 1928, Mr. Radtke brought another interesting collection to Manila, from the same general area, and later turned it over to me for a relatively reasonable price. All of these specimens were obtained on or near the Radtke Cattle Ranch, in the sitio of Luka, Colorado barrio, Aroroy municipality, at the northern extremity of the Island. The principal objects in the second collection were: Three whole Ming plates, all 15th century; two broken dragon jars, probably also 15th century; one whole tall dragon jar of a peculiar type that is probably Yuan or earlier; 10 good pieces of broken celadon dishes and small jars; one whole clay pot of native ware; and 23 filed, reddened, and originally inlaid teeth, of which only one still has the gold peg in place. Most of the celadons came from a (Yuan?) land-burial site, the whole dragon-jar from a small burial-niche accidentally uncovered, and the remaining material all from burial caves and niches along the coast. (No Stone-Age material or tektites were ever found, although I asked him particularly to look for them.) Celadon-producing midden-sites still exist on his ranch, particularly in the area where the gardens are located.

Dimasalang burial cave.—In January, 1930, Jaime Echevarria brought to Manila a number of interesting small objects and porcelain fragments, all of which had been obtained from a small burial-cave near Dimasalang. He stated that much similar material could be obtained in the vicinity, and that he

had brought in a few samples only. The lot consists of nine ceramic pieces and fragments, one whole shell bracelet, five broken shell bracelets of three different types, a broken blue-glass bead, and a mammalian tooth with carry-polish indicating possible use as a charm or ornament. The specimens seem to all date from the 14th to the beginning of the 16th century—the porcelain showing both Chinese and Sawankhalok types—but two pieces may indicate a still earlier burial in the back of the cave. (Further exploration of the Dimasalang area is unquestionably advisable.)

Cooke burial-jar site.—Another Masbate Porcelain-Age site of much interest is that brought to my attention about 1936 by Mr. C. J. Cooke. It is located between 7 and 8 kilometers south of Aroroy, or about half-way along the trail from the town to the Cooke Ranch. It is accessible only on foot or by horseback.

The site consists of a sizable dome-shaped hill, on one slope of which a number of interesting jar-burials were excavated by the farmer now cultivating the spot. Having learned of the finds, Mr. Cooke assisted this man in digging out one of the jars and examining its contents. Several beads and glass bracelet fragments of unusually interesting types were brought by him to me in Manila. From his description it seems likely that a very sizable burial ground is located in this area, and that many jar-burials could be found around the hillside by a systematic search. He thinks that perhaps a dozen jars had already been excavated by the farmer, who usually broke them up and scattered the contents in true treasure-hunt style. The material brought in seems, rather curiously, to be Iron Age rather than Porcelain Age in type, but, in the absence of fragments of the jars and other pottery from the site, no certain dating can yet be attempted.

Finds in and around the old mines at Aroroy.—During the early decades of American mining exploration in Masbate, many interesting finds of ancient workings, old tools, and associated ceramic wares and other objects, were made. The late Col. H. B. McCoy, and Messrs. Herbert, Schwab, Edelmeier, Wilson, Carpenter, and others, as well as Dr. Warren D. Smith, often told me of such finds, and their usual opinion was that the oldest workings were Chinese in origin. However, later researches conducted by Mr. Herbert and others, at my suggestion, clearly indicated that many of the older workings were made by Hindu and Javanese methods ("quicklime process") rather than by Chinese ("gunpowder method"). This tends to confirm our early historical records, which imply extensive gold-mining in the Philippines by Indians and Javanese during the days of Sri-Vishaya and Madjapahit.

A few small lots of ceramic fragments and old mining tools from this area were brought in occasionally for my collection. The most recent and best of these was delivered in December, 1939, by H. D. Weidman, of the Masbate Consolidated Mining

Co. The lot consists chiefly of porcelain and pottery fragments gathered by himself, and assisted by H. A. Mann and A. Kelly, from a midden site on and around the old surface workings of the Panique Mine. A sizable new area was being opened up there, and a number of ancient workings were being uncovered in the process. Most of the ceramic material appears to have come from an old midden deposit along the crest of the ridge where the work was being done.

The specimens are almost entirely late 15th and early 16th century Chinese wares, apparently coming to an end about the time of the Spanish Occupation. Only one Sawankhalok fragment appears, being part of the cover of an early 16th century black-and-white small round vase or box of the usual type. A few fragments of Chinese stoneware jars occur, but most of the common pottery is doubtless of native origin.

Future possibilities.—From the above data it is apparent that Masbate Island is rich in archaeological deposits, and that properly conducted systematic work there would likely be very productive. The mining industry there has largely been closed down for the past six years, and the countryside is rapidly growing up to weeds and jungle again. Should it be reopened, as a part of the reconstruction program, an effort should be made to station a capable archaeologist there.

Workers.—(As indicated under the foregoing various items.) Also Dr. A. C. Skerl, Mark Hubbard, and others. [For further Masbate data, see Addendum.]

42. *Samar Island:*

(Considering the richness of the finds made in widely separated parts of this little explored island, it seems likely to prove one of the best fields for future work. More than a dozen important finds have been made in Samar in the past, and it will be possible here to give only a brief and inadequate description of them. No particular arrangement is attempted, except by general subject.)

Tektites and Stone-Age remains.—Early in 1931 a weather observer in Samar found a single spheroidal tektite in the barrio of Lawaan, Wright municipality, and sent it to Fr. Miguel Selga in Manila. It is still uncertain whether this was a true natural specimen, or whether it reached Lawaan by human transport (as a charm-stone or curiosity).

Dr. Carl Guthe found one small stone axe or adze in Samar, but I do not have the data as to locality. The late Joseph Motok, of Catbalogan, also told me in 1924 of seeing several Neolithic stone adzes which were preserved as charms or magic stones ("lightning tongues") among the semipagan hill people in the interior of the Island. He was not able to obtain a specimen at that time.

In the 1860s Feodor Jagor saw interesting fossil beds near Basey, and at two other Samar localities, but did not have time to examine them in detail.

Jar-burial sites of the early type.—On August 13, 1921, Mr. Ralph S. Frush, an engineer in charge of work on the eastward extension of the Catbalogan-Wright road, came across a most interesting ancient jar-burial site of the same general type as those previously described from Pilar, Sorsogon, and San Narciso, Tayabas. The site is located in the barrio of Motiong, Wright municipality—most of the jars being found in a clay soil, about a meter below the surface, near the foot of a steep mound or small round hill located only about 20 meters from the seashore. A small creek runs into the sea near the foot of the mound.

More than sixty burial jars were actually excavated in this locality, and it is probable that many more still exist there outside the road-area. Most of the jars contained only much disintegrated bones, but a few are said to have contained some beads and a few gold ornaments, which were quickly sequestered by the laborers who dug them out. Two iron knives shaped like *kampilan* were also found, but they were so completely rusted that they fell to pieces when lifted. All of the jars seemed to be of thick unglazed earthenware, quite similar to those found at Pilar and San Narciso.

Mr. Frush stated that many similar jars, as well as some glazed ware and celadon pieces, had been excavated previously in the barrio of Lawaan, and that a number of gold ornaments, some of which he had seen, were found with the Lawaan specimens. It seems evident that further systematic work would be profitable, both in Motiong and Lawaan. (If the Lawaan tektite is really a charmstone, it may possibly have come from one of these graves.)

In February, 1923, Dr. Carl E. Guthe excavated part of another burial site, also accidentally discovered in road-building, near the barrio of Egid (Igid?), a few miles north of Catbalogan. The road-contractor had previously dug out a number of jar-burials, in which the jars had been covered with flat stones grooved to fit over the jar rim—exactly as Galang found at San Narciso, Tayabas. In addition to finding a grooved stone cover and a mass of confused skeletal materials in an area disturbed by the contractor, Doctor Guthe excavated five additional jar-burials (containing what appeared to be remains of children) and five adult skeletons buried at length. One of the adult skeletons had the remains of an iron dagger in the right hand, while in another case a bent dagger was lying on the chest. The heads were oriented towards the east. In all of the jar-burials the bones were badly disintegrated, but each contained a number of small colored beads (white, red. yellow, orange, and blue) and a hard white deposit in the bottom, the character of which was not identified. The jars themselves were of the usual thick coarse earthenware common to true jar-burial sites.

Two small midden sites were found in the vicinity. One, consisting chiefly of a shell heap (containing 17 edible va-

rieties in which were mixed native pottery fragments, remains of fires, etc., but no porcelain, could be contemporary with the jar-burials. The other, some little distance away and containing Chinese porcelain fragments, seems to be of a much later date.

(About 1919 or 1920 Herbert G. Schenck, then a young geologist connected with the Bureau of Science, found an interesting skull and some other mixed skeletal remains washing out of an old sand bed, on the Samar coast in this vicinity. The evidence strongly points towards their having come from some such deposit as that excavated by Doctor Guthe. Unfortunately, both specimens and accompanying notes were destroyed during the war, and a recheck is no longer possible.)

Oldest Porcelain-Age burial-cave finds.—In 1860 Feodor Jagor, making his headquarters at Basey, explored a large number of burial-caves and other caves near the eastern entrance of the San Juanico Strait. At Nipa-nipa, a few miles from Basey, he found numerous broken coffins, several skulls, and many potsherds both of porcelain and pottery. Three shapes of coffins were seen.

At Giwan he secured four good porcelain pieces and a gold ring of the hollow-tube type—all said to have been found in a nearby cave. At Catubig he saw several ancient gold ornaments (from a cave in the vicinity) which the people had already converted into modern adornments.

At Laoang one cave is famous on account of the gigantic flattened and deformed skulls found in it.

Doctor Guthe's cave-excavation on the islet of Suluan.—A single cave is located on a rocky islet connected to Suluan by a tidal flat, off the southern point of Samar. The cave is low and small, with two openings, and is probably washed to some extent by waves in the more violent storms. Doctor Guthe's party spent five days in screening the earth within the cave. There was a quantity of skeletal material, of which the more perfect specimens were saved. The following is a list of the specimens obtained from this cave: 22 green, 4 white, and 1 grey, ceramic fragments; 43 blue and white and 3 black and white, ceramic fragments; 11 fragments of dark-glazed jars; 1 fragment of native pottery; 1 specimen each of gold, copper, lead, and iron; 1 piece glass (a bracelet fragment?); 4 beads; 5 shell specimens; 14 skeletal specimens; and 5 miscellaneous—or 118 specimens in all.

Early Porcelain Age: The Shauger Sites.—The greater part of the former extensive Shauger Collection from Samar came from a single huge burial ground, dating from the Sung-Yuan period, which was slowly being cut into by a river on Shauger's ranch-located a considerable distance inland from Wright in the general direction of Taft. The general interest of this site has been greatly enhanced by the high quality and perfect state of preservation of the specimens—a condition which has

been greatly contributed to by the sandy and noncorrosive nature of the soil in the locality. However, there are other smaller burial sites of a similar nature in that vicinity, as Governor Shauger informed me while still living, and about 25 per cent of his collection came from such other sites—some of which specimens are not as high in quality as those from the original site. The dissemination of this collection after Shauger's death (about 1936) is a great loss to Philippine archaeology.

Several of the best porcelain pieces and a good selection of gold ornaments were brought to Manila in 1929–1930 by Governor Shauger who kindly allowed me to have them photographed. Unfortunately these photographs are all that remain of a very wonderful collection—one of the best ever made in the Philippines.

The porcelains, which constitute the bulk of the collection, are remarkable merely for their quality and fine state of preservation—since we have similar specimens from a number of other Philippine sites, and no unique pieces appear in the Shauger lot. The case of the gold ornaments, however, is very different. The Governor had accumulated between two and three hundred pieces of old Philippine gold work, many of which were entirely unique until some of the types began to turn up in dredging operations in Paracale and the Zamboanga Peninsula. More than 25 types of gold beads, varying from tiny specimens a millimeter in diameter up to heavy tubes nearly 10 centimenters in length, covered with arrangements of ornamental pellets of various sizes, were found, as well as a number of rings, ear-ornaments, etc. (The types can only be shown properly by photographs or drawings.) The date of the bulk of the Shauger material is probably not later than the 12th and 13th centuries, A. D.

Later Porcelain Age; The Hartendorp Collection from eastern Samar.—In March, 1919, A. V. H. Hartendorp explored three cave-sites near the town of Borongan, on the east coast. The three sites are known to the local people as Tominobo, Kalikó'an, and Isla de Ando, respectively—and the latter site was already reported to Jagor in 1860. They all lie relatively near together, at a point some seven or eight kilometers to the northeast of Borongan town.

The Tominobo cave contained the least numerous remains, and all the ceramic material is of probable 14th or 15th century date.

The Pananañgátan cave at Kalibó'an barrio proved the most interesting of all—containing numerous remains of a variegated character. Many fine quality but broken Sawankhalok and Chinese porcelain pieces were found, as well as considerable skeletal material, loose teeth filed and artificially blackened, a number of interesting shell ornaments, some rust cakes that had once been iron from weapons, and other objects. Among the decayed remains of a wooden coffin, two small

whole porcelain jarlets, one whole shell bracelet of an early type and several other ornaments and small objects, were found, together with a group of much decayed bones and skull fragments. One of the small jarlets strongly resembles the Kalong wares of northern Siam, and it had evidently been used as a lime container for betel chewing. A few of the celadon fragments in this cave are evidently Lungchuan productions of the late Sung period, but a majority of the material is Yuan or early Ming in date. Many good dragon-jar fragments of the earlier Ming types were found, and many pieces of shell bracelets and other ornaments. It seems obvious that there are two periods of burial in this cave (one Late Sung and Other Early Ming), and the two distinctive types of bracelets found tend to confirm this view. The shell bracelets with rectangular cross-section are found only with Early Ming material, as are also certain types of shell beads and belt rings. The percentage of Sawankhalok wares mixed with the Early Ming ceramics runs up to 40 or more, in these east Samar caves. However, only two good Sukhotai specimens have been identified in the lot, and three fragments of the special "red-bottomed" type of supposed Indo China ware. This is of decided chronological significance.

The small island known as "Isla de Ando" contains not merely one but a considerable group of small caves, niches, and rock-shelters, located some distance apart. Hartendorp had time to explore only nine of them, finding ceramic fragments and some human remains in practically all. Fragments of dragon-jars and of 15th and early 16th century porcelains including some interesting early three-color wares, are the commonest. Ando IV produced one whole jarlet, and Ando II three excellent but broken Sawankhalok celadon dishes, as well as an extra-large "lion"-ear from a big Early Ming jar. Ando III had several typical Sukhotai deep black-and-white fish dishes of definite middle 14th century date; while Ando V and VI contained only native pottery and some skeletal material, but no porcelain fragments at all.

A number of the more nearly complete skulls were collected by Hartendorp, and most of them clearly show artificial deformation. Many of the teeth are filed and blackened. Due to transportation difficulties chiefly, only a small part of the total remains in these caves was collected, and they all merit additional work in the future, particularly with excavation of dirt-filled portions. Three quite definite periods of use appear: (1) Middle or Late Sung; (2) 14th and early 15th century, with presence of Sukhotai and Sawankhalok wares; and (3) Late 15th and early 16th century, with absence of Siamese wars very notable.

Other Later Porcelain-Age finds.—A number of interestng pre-Spanish and early Spanish period ceramic pieces were gathered from various parts of Samar by Joseph Motok, first for Dean C. Worcester and later for Dr. Carl Guthe. I examined

some of this material in 1923–1924 and found it to consist chiefly of stoneware jars, celadon dishes of varying size and quality, and a considerable number of shell bracelets, beads, and other small articles—mostly from accidental finds inland, plus considerable broken material from caves along the coast. Collecting notes were not always very accurate or reliable. Nevertheless, Motok compiled many interesting and informative notes concerning the natural history and archaeology of Samar.

The late F. W. McCaw in 1928 gave me a small porcelain vial, of probable 15th or early 16th century date, that he had found about 1914 in a cave on a small island near Catbalogan. At that time there were many porcelain and jar fragments in the cave, as well as human bones, pieces of disintegrated wooden coffins, etc. It is probable that Doctor Guthe later removed most of this material, but the site should be reëxamined systematically.

In the 1930s Pedro Menguito, one of my most energetic general collectors, made a trip through western Samar and obtained a number of good pre-Spanish porcelain pieces (mostly damaged to some degree), chiefly from accidental finds by farmers and others, and mostly without any definite record of specific locality. No new sites were located.

The most recent Samar finds were made chiefly in the general neighborhood of the Elizalde iron mines in the southeastern part of the Island. The first specimens from this locality were collected by Dean F. Frasche, of the Philippine Bureau of Mines, who obtained a number of interesting skulls (mostly deformed) from a cave and several whole celadon dishes and other pieces from accidentally excavated land-burials in the vicinity. In December, 1938, Mr. Claude Russell brought me a basketful of large and small porcelain fragments, broken shell bracelets, etc., chiefly from the same cave where the Frasche skulls were found. This material consists of about one-third Sukhotai and other early Siamese wares, one-third Chinese monochromes, and one-third Chinese and Indo-China blue-and-whites—all dating probably between the late 13th and middle 15th centuries. The probable Indo-China blue-and-whites belong to the curious red-bottomed group; while the Siamese wares are mostly of the very early Sukhotai black-and-white type with reddish bodyware. There is also a unique celadon dish that seems pretty definitely to have a Sukhotai body, and one black-glazed small jar that may be either Kalong or early Chalian. Four types of shell bracelet occur, one of which is of the rare wide type with parallel fluting—hitherto known only from Cebú and one or two other Central Visayan localities. One other type is, so far, unique to this site.

On the whole, the Frasche-Russell Site is one of the most interesting yet found in Samar, and certainly merits systematic exploration. Other interesting remains, as yet unexplored,

are also said to be plentiful in the vicinity and to merit detailed investigation.

Workers.—(As indicated under the foregoing various items.) Also Cecilio I. Lim, José L. Lagrimas, and Hugo Fresto. [For additional Samar data, see Addendum.]

43. *Leyte Island and Province (including Panon, Biliran, and Maripipi Islands):*

(No systematic archaeological work has ever been done in the thickly inhabited Leyte Island; although, theoretically, it should be one of our richest hunting grounds. However, due to the extensive cultivation, many accidental finds have been made from time to time. No tektites or palaeoliths have yet been reported.

Late Stone-Age finds.—In December, 1935, Mr. Jesus I. de Veyra donated to the University collection two very interesting Middle or Late Neolithic stone adzes which had been found in the early part of the same year in the edge of a bank on the beach being washed away by the sea at Kalubian. He stated that the local people speak of having found other similar specimens in this vicinity in the past, and they call them *'tangó han linti'*, or "lightning teeth." (These are the first true prehistoric stone-implements reported from the Island, and the site should certainly be investigated further.)

Early Porcelain-Age finds at Ormoc.—In May, 1937, Mr. Manuel Abello, Jr., assistant manager of the Ormoc Sugar Co., informed me of some very interesting finds of unique gold ornaments and ceramic pieces on certain sugar lands in the vicinity of Ormoc; and later, in June he kindly sent me photographs of part of the gold collection and of a clay pot in which they had been found. A peculiar gold image is said to be in the hands of another person, and could not be included in the photograph.

Of the six pictured gold ornaments, three can at once be identified as being quite similar to old Javanese gold work of the pre-Madjapahit period (say 12th century or earlier), and one specimen is practically identical with the Perkins gold rings found also buried in a pot in San Felipe Neri, Rizal Province. One of these pieces (resembling a snail, with a small tube through one end) is very similar to a Shauger 12th century bead-pendant from Samar. Two of the other pictured specimens are similar to the thin Iron-Age gold work of Site A in Rizal Province, and certain mixed Late Iron-Age and Early Porcelain-Age thin gold bands from Cebú and Marinduque. The last pictured specimen is a heavy gold chain, with a hook and ring for wearing around the neck, quite similar to certain old specimens from the Batanes Islands and from central Luzon.

Practically all of the gold ornaments and whole porcelain pieces found in this group of sites passed into the hands of well-to-do people connected with the Ormoc Sugar Central, and

they do not wish to part with them. How many specimens survived the war period is not known.

Other Ormoc finds.—On March 23, 1929, T. M. Suficiencia accidentally excavated two whole ceramic specimens on a small farm near Ormoc. He presented them in 1930 to former Governor-General Dwight W. Davis, who donated them to my collection in 1931. One specimen is a very interesting small Sawankhalok jarlet or narrow-necked bottle with a typical treacle-brown glaze—almost certainly 14th century in date. The other piece is a small but heavy brown-glazed stoneware jar—probably Chinese ware of the early 15th century. (This area should be further investigated.)

In late December, 1932, an American teacher, Mr. Manley Sharpe, found in a cave near Ormoc a small unique ceramic specimen, which was afterwards brought to me by Harold Jacobs. This specimen is a unique piece of native pottery that seems to be a funerary representation of an ornamental bolo-handle or scabbard-end, but of no utilitarian value in itself. The cave, which was examined by both Jacobs and Sharpe, is said to contain many porcelain and pottery fragments, as well as bones and other objects; but, not having any means of transportation, they took only a few small or unusual specimens that could be easily carried. (If this cave can be again located, it should be thoroughly explored.)

Miscellaneous Porcelain-Age collections from Leyte.—Both Dean C. Worcester and Dr. Carl Guthe did considerable miscellaneous porcelain collecting in Leyte and Samar, in addition to their main field of work in the Cebú-Bohol-Siquijor group. In his final published report ("Distribution of Sites Visited", etc.), Doctor Guthe lists 2 caves and 2 land-burials explored in Leyte, and 12 caves, 3 burial-grounds, and 2 individual land-burials explored in Samar. None of the locations of Leyte sites are given, however; although there is doubtless a complete record with the collections in the Michigan University Museum. It is also probable that all identifiable Worcester sites are recorded there, but none of the data are available in Manila at this time.

Pedro Menguito's collecting.—This collector, employed by me for a considerable period, spent some time in Leyte in the latter part of 1932 and obtained a number of good porcelain and stoneware pieces from accidental finds, but was able to locate only one good site. This site was on a small farm near Baybay, where four excellent Sung porcelain pieces were dug from what appears to have been a 12th or 13th century grave. The largest piece is a beautiful dark-green celadon dish of medium size, with two well-formed fish impressed in the center. The ware appears to be definitely Lungchuan in type, as is also that of the second specimen, which is a small tub-shaped celadon dish of the usual style. The third piece is a medium-sized celadon jarlet with two ears; while the fourth and last is a good quality celadon bowl.

Crisogono Saceda's collecting.—In April, 1933, this collector also brought me several miscellaneous ceramic pieces from accidental finds in Leyte; and was also able to locate only one good site. In a field in the barrio or sitio of Punpunan, Baybay municipality, he located a midden site containing many fragments of common pottery, a few fragmentary iron tools and implements, and one stone artifact. Stoneware and porcelain fragments were wholly absent, and the appearance of the potsherds and other objects seems to be typically Iron Age. (This site should be reinvestigated and Iron-Age graves sought for.)

The Jacobs Collection.—While teaching in the Leyte High School at Tacloban, in 1932–1933, Mr. Jacobs spent considerable spare time in investigating reported porcelain finds in northern and central Leyte, and ultimately collected between 50 and 60 good pieces, which were mostly shipped back to his home in New York in lots of about twenty pieces at a time. He states that about one-half of these were celadons of fair to good quality, and that the remainder were mostly Chinese blue-and-whites. He brought to me in Manila for identification one unique early 15th century green-and-white piece, lacking a cover, which he later donated to our collection. This piece and two or three other ordinary ones were found inside a large black-glazed jar of typical Early Ming type, which was excavated in a banana field in a small barrio about half-way between Palo and Carigara. One of the other pieces found in the jar was later acquired by Doctor Bantug, while the remainder were carried away by local citizens.

According to data furnished by Jacobs many pre-Spanish ceramic pieces are accidentally found throughout the northern half of Leyte Island. He states that the people frequently excavate old pieces in their fields, or find them washed out along the river banks. They usually treat such pieces carelessly, often allowing the children to play with and break them, or sometimes using them for household purposes or in feeding the chickens and pigs. In some barrios, however, the people fear the dishes and always either re-bury them in the ground or throw them into the river or sea. Very few local people seem to have any knowledge of the character of such wares, and think of them as belonging to the spirits or beings not human, although some of the wiser ones say that they belonged to their dead ancestors of long ago.

The last find reported to me by Jacobs, before he left the Philippines (1938?), was a good example of a small "hole-bottom" dish with a typical red fish in the center, together with two blue-and-white jarlets, all of Early Ming types, excavated together in a barrio field near Palo.

The Babcock Collection.—Much the largest old ceramic collection ever taken out of Leyte was that made by Mr. Orville Babcock, while he was acting as Division Superintendent of Schools for the province, and afterwards. Not all

of the Babcock Collection came from Leyte (see other sections from Camiguin Island, Lanao Province, and elsewhere), but the great majority of it did, particularly from the southern part of the province. The total number of pre-Spanish pieces from Leyte alone was not less than 300, of which more than half were Chinese blue-and-whites chiefly 15th and 16th century. I believe that all of this material was shipped to the United States about 1939, except for a few interesting damaged specimens which passed to the Roth Collection. I saw most of the pieces after they were brought to Manila, the most interesting single specimen being a medium-large and unusually perfect Khmer vase, of the type (10th century?) from Negros Island that will be later described. A few unique specimens or shapes are also of special interest, and the number of good Southeast Asia wares is unusually large. Several "red-bottomed" pieces are included.

Unfortunately, like many of our other general ceramic collections from the Visayan Islands, Babcock did not keep any accurate notes as to the sites and exact localities where the pieces were found, particularly as many of them were obtained through local teachers or other secondary sources. The material is therefore mainly of value only for typological and general study, and contributes but little to our distributional knowledge. It is to be hoped, however, that the Babcock Collection goes intact to some museum, and is not disseminated and scattered among individual collectors. (See Addendum, page 367.)

Hugo Miller's Collection.—The late Hugo Miller, who was killed in Leyte during the war, had a considerable number of good porcelain pieces (probably not more than 25 or 30 in all), mostly collected in the northern and western parts of Leyte Province. Most of them were Chinese blue-and-whites (chiefly 15th and 16th century), but a few Sawankhalok and Chinese celadons, and Ming jars, were also included. Several of the later acquired pieces were still in Manila in 1941, and were probably destroyed during the war; but the earlier lots had been sent to his home in Santa Cruz, California. Their present whereabouts is uncertain, as they have probably passed into the hands of relatives or other persons. While several of these pieces were interesting, especially a good 15th century blue-and-white bottle, there were no unique or exceptionally rare specimens among them.

Workers.—(As indicated under the various preceding items.) Also Teresa and Pedro Abella, Teofilo Palencia, Ceferino Montejo and Eulalia Brillo. [For additional data on Leyte, see Addendum.]

44. *Bohol Island and Province:*

(No tektites, true Stone-Age or Iron-Age remains, or early jar-burials have yet been reported from this Island. However, both Early and Later Porcelain-Age remains are plentiful, and many finds have been made. In fact nearly one-third of our general Visayan Islands Collection has come from Bohol,

but a large part of it is without proper site or locality identification. Only those sites about which we have some specific information will be listed below.)

Burial-cave explorations.—In 1914 Timoteo Butalid and Domingo Torralba reported that "there are many burial-caves both on the coast and in the interior of Bohol. The people fear them and they are usually entered only by birds-nest hunters (looking for the nests, or *saag*, of the *sáyao* bird, for which the Chinese pay from 3 to 5 centavos per nest). Bones, coffins, and other things in the caves are seldom or never disturbed by the local people."

The Guindulman caves.—Found about three miles east of the town, by Richard C. McGregor, of the Bureau of Science, in June, 1906, who collected two remarkably interesting skulls there and describes the caves as follows: "The two skulls . . . . were found in a coral-limestone cave, in the face of a cliff next the sea. There were three or four of these caves, all containing bones and remains of coffins. The openings of the caves were 10 to 15 feet above the water, and were not large enough to permit a man to enter standing erect. The coffins were in two parts, each made from a single piece of hard wood. Coffins and bones were much mixed up together, as though previously disturbed and pulled about. No beads or other materials were found, except some pottery. There were possibly as many as twenty coffins represented in the remains. The natives here do not like to enter the caves, as they say that many spirits, in materialized form, have been seen there." (The two McGregor skulls were destroyed during the war, but we still have good photographs and measurements of them.)

Luther Parker's Collection.—Three Bohol caves were explored by Parker prior to 1914: (*a*) One on Panglao Island; (*b*) very good one at Loay; and (*c*) one at Kandihay.

All of the specimens obtained were taken to the United States, and were deposited either in the Michigan University Musuem, the Field Museum of National History (Chicago), or are kept at Parker's present home in Santa Cruz, California (311 Bay Street). He kindly furnished me with good photographs of the seven Loay skulls (still on hand), and of two coffins and some other objects (destroyed). His list of the principal specimens obtained is as follows: Seven deformed skulls and some other bones from Loay; one carved wooden coffin lid from Loay; one hardwood loomstick (*pudan*) from burial niche above Loay cave; one iron knife originally wrapped in cloth, the texture of which can still be seen in rust-cake from the very dry Loay cave; a large collection of ornaments from Loay, containing shell bracelets, a bone bracelet, one stone bracelet, one copper or bronze bracelet, a blue-glass bead, some fragments of other shell ornaments, and other objects. Also quantities of Chinese ceramic fragments; and, in the burial niche above the main cave, some deeply buried

fragments of plain and decorated native pottery. Ceramic fragments and bones were found in all three of the caves. Stories of gold ornaments being found in the caves are current among the local people, but no actual specimen could be located.

Doctor Guthe's cave excavation.—In addition to investigating 17 caves, 35 burial grounds, and 55 individual land-burials, 1922–1924, Dr. Carl E. Guthe excavated carefully the single large cave in Sukgang barrio, 7 kilometers east of Loay. This cave is beside the main south road of the Island, and is readily accessible. Doctor Guthe and a force of local laborers spent four weeks in completely excavating the cave and the talus slope just outside the lower entrance. (From the description, it is possible that this is the same cave investigated by Luther Parker some ten years earlier.) Besides the much-disintegrated remains of some wooden coffins, the following specimens were obtained: 79 celadon or green-glazed ceramic fragments, plus 40 grey, 26 white, and 31 brown glazed; 40 blue-and-white and 23 black-and-white ceramic fragments; 4 over-glaze decorated; 7 unglazed stoneware, and 28 fragments of dark jars; 19 fragments of native pottery; 2 iron implements or weapons; 5 specimens of copper or brass, and 1 of lead; 4 gold ornaments, and 1 of glass; 1 bead, and 13 shell ornaments; 11 skeletal specimens; 3 stone specimens, and 4 miscellaneous; or 342 specimens in all.

No stratification was observed, as the deposits had been much disturbed by the elements. The records of Doctor Guthe's other Bohol finds are doubtless with the specimens in the Michigan University Museum, but are not now available in Manila.

S. Warner's specimens.—In 1917 or 1918 S. Warner (formerly of Siassi) gave two interesting Bohol cave skulls to Doctor Ruthven, head of the Michigan University Museum. (No record of the exact cave is available here.)

Gilbert Perez' Collection.—Before the war Mr. Perez had one fine-quality specimen of a whole bracelet made from a rare red-brown type of glassy paste (opaque), found in a Bohol site together with some porcelain pieces, shell bracelets, iron weapons, and other objects, but the locality and type of burial is not stated. (The collection was destroyed or disseminated during the war.)

Possible Stone-Age specimens.—In a letter to me dated in November, 1924, Doctor Guthe mentioned one possible palaeolith and two late Neolithic adzes being found in Bohol, but did not give the locality or circumstances. (They are probably in the Michigan Collection.) [For further details on these specimens, see Addendum.]

A land-burial site.—In October, 1925, an almost complete skeleton was found in an ancient burial site on top of a hill at Calape, while the excavation for the reservoir of the Calape waterworks was being made. The skull, mandible, and 74 miscellaneous whole and fragmentary bones were collected by the

District Engineer and presented to the University Collection. (Unfortunately, no pottery fragments were collected, and it is thus difficult to date this find.)

Porcelain-Age sites.—Some of my regular collectors have recorded specific sites in Bohol, and these are worthy of brief discussion:

Pedro Menguito's Collecting.—In July, 1931, Menguito obtained a nearly whole Chinese 15th century blue-and-white dish of good quality from a farmer who had just excavated it in a field in the barrio of Tagbunán, back of Sikatuna town. He did not have time to investigate the site further, beyond gathering a few additional broken 15th century fragments from the field.

In November, 1932, Menguito made another trip to Bohol, and this time obtained five whole ceramic pieces excavated from a single site in the town of Dimiau, together with two packages of mixed ceramic fragments from the Dimiau fields, and from some other fields in the nearby Cabad barrio of Cortes municipality. The Dimiau site appears to be a 15th century burial-ground, since not only are the five whole pieces all early 15th century but also the fragments from Dimiau fields appear to have come from a relatively small number of once whole 15th century pieces, probably broken up and scattered by previous cultivation. The package from the Cabad site shows one nearly whole *kylin* plate and a large number of blue-and-white fragments, nearly all of Chinese 15th century wares. (I instructed Menguito to investigate this area further, and he made another trip near the end of the year.)

In February, 1933, Menguito returned from his second trip to the Cabad Site, in Cortes, with the following collections: Two whole blue-and-white dishes from the same middle or early 15th century area, including another *kylin* plate. A large package of mixed midden fragments from adjoining fields, containing 7 Chinese blue-and-white, 10 Chinese celadon wares, and 1 large fragment of a Sawankhalok celadon. It is thus probable that the midden site is at least two generations older than the land-burials containing the whole pieces. The proportional poverty of Sawankhalok specimens points definitely toward a middle or late 15th century culture, when the Siamese pieces had already largely disappeared from the trade.

(Menguito made another, and still more successful, trip to Bohol shortly before the war. This will be taken up after first discussing the Hester Collection.)

E. D. Hester's Collection.—In 1939 Mr. E. D. Hester made an extensive trip through Bohol Island and located several interesting archaeological sites. One of the potentially most important is a very extensive midden site just to the east of Tagbilaran, where a very large and variegated pre-Spanish settlement must have been located.

The fragment collection seens to indicate two or three distinct periods of inhabitation, the first of which goes back at

least as early as the 9th or 10th century, A. D. There may have actually been more or less continuous inhabitation from the 9th or 10th century down to the Spanish arrival in the 16th century, but with two or three shifts of the population center. Sawankhalok wares are largely represented in the middle period of the three, but not in the first and last.

One of the characteristic common pottery wares in the earlier part of the site is the very decorative Cambodian or Southeast Asia pottery type named "Kuta Tinggi" by me, on account of its great prevalence in the Kuta Tinggi site in the Malay Peninsula. (A large collection of this material is stored in the Raffles Museum at Singapore, and was examined by me in 1938, liberal samples being brought to Manila for our comparative collection.) Mr. Hester collected many typical sherds of this ware—particularly of the decorated forms—in the Tagbilaran site. Also a considerable number of both plain and decorated fragments of genuine Cambodian stoneware, of types only known from the 9th to the 12th century. (This site is deserving of special future study and more extensive collecting.)

Menguito's last Bohol lot.—In June–July, 1940, Menguito made his last collecting trip to Bohol prior to the war. He obtained nearly a dozen good pieces of pre-Spanish Chinese and Sawankhalok wares (mostly without specific site data) from accidental finds, and one unique whole piece that was definitely the prize of the lot. This is a large common pottery round-bottomed jar or pot, decorated over the whole body with a typical "Kuta Tinggi" design. It was excavated in a ditch, several kilometers to the east of Tagbilaran, somewhat beyond the Hester site; but both the decoration and the bodyware are identical with many of Hester's fragments. This is the first whole piece of this ware to be found in the Philippines, and it is thus of exceptional interest. (The body is 30 centimeters wide by 20 centimeters high; and, considering the thinness of the ware, it is rather remarkable that it has survived unbroken for so long a time.)

Workers.—(As indicated under the various preceding items.) Also Dean C. Worcester, and Major Eugene de Mitkiewicz.

45. *Siquijor Island (part of Oriental Negros Province.):*

(As early as 1918 the late Governor James R. Fugate told me of having seen many pieces of pre-Spanish ceramic wares, in Siquijor, that had been accidentally excavated during the carrying out of the public works program that he had initiated there. The first actual collecting and preserving of such pieces, however, was begun by Dean C. Worcester. Luther Parker also explored a cave near Larena, prior to 1913, and obtained a small carved wooden coffin, some skulls and other bones, a quantity of interesting potsherds, and some shell ornaments. The cave was about one kilometer south of Larena, and many other burials in niches and rockshelters were seen in the vicinity.)

Stone-Age remains.—No tektites or palaeoliths yet reported. Governor Fugate told me, in 1918, of having seen two or three polished stone adzes in the hands of old people on the Island who regarded them as "lightning stones" having magic properties.

In November, 1924, Dr. Carl Guthe sent me two photos of a fairly good specimen of a plain-backed rectangular Late Neolithic adze from Siquijor. (He does not give the locality, but it is doubtless entered in the catalogue of the Michigan Collection.)

Guthe-Brown Collection: Porcelain-Age remains.—The principal work on this Island was the general survey conducted for Dr. Carl Guthe, 1922–1924, by Mr. Harry Brown, but specimens were actually collected from only a small part of the numerous sites listed. Doctor Guthe lists a total of 79 separate sites from Siquijor, of which 14 are classed either as "miscellaneous" or "doubtful." Of the remaining 65 good sites, 13 are caves, 21 burial-grounds, and 31 individual land-burials or accidentally excavated graves.

Doctor Guthe does not list exact localities or contents of these sites; but all of this data is duly recorded in the carefully-made card-catalogue of sites kept by the Michigan Expedition, a copy of which is doubtless still in Ann Arbor.

Workers.—(As indicated in the preceding items.)

46. *Cebu Island and Province:*

(This Island is the most thickly inhabited in the Philippines, and it has also been more thoroughly explored archaeologically than any other area outside Rizal and Batangas Provinces. Most of the work has been rather unsystematic, however, and the finds have been chiefly of the Porcelain Age and the Late Iron Age. It is highly important that further systematic work be done there—particularly on the western side of the island, and over the southern third especially—and that more attention be paid to earlier remains.)

Tektites.—Although tektites have been several times reported from Cebu, the first actual site was not located until October, 1940. This was found by a farmer in a small hill barrio in the south-central part of the Island, and was examined by my collector, Pedro Menguito, who found three good specimens in a primary site covered by from one-half to a full meter of soil and clay. (The specimens were not properly examined by me until 1941, and war developments prevented any further exploration of the site.)

Neolithic Stone-Age remains.—Doctor Guthe found one good small trapezoidal Late Neolithic adze (plain-backed) in Cebu, of which he sent me a good sketch in November, 1924, but it was without any data as to exact locality.

Kenneth B. Day had, prior to the war, a very good specimen of a black hornrock stepped adze of early type, found in cutting down a new road bank on the Cebu-Toledo road,

near the crest of the ridge. (I have good photographs and measurements of this specimen.)

Rodrigo Velez, of Cebu, had in his possession in 1938 two Late Neolithic adzes or chisels, both of which had been found in central Cebu, but without data as to exact locality.

My own Cebu collection contains the following true neolithic specimens: 3 stone adzes, 1 worked stone-hammer, 2 barkcloth beaters, and 3 worked objects of uncertain use. One curiously-grooved barkcloth beater and the worked Neolithic hammer were both found on a small hill farm in south-central Cebu, but the exact locality was not stated. The largest barkcloth beater (horned), and two good Middle or early Late Neolithic adzes (plain-backed), were all found in one field in the hill barrio of Banilad, Ginatilan municipality. One other good semi-gouge type of early Late Neolithic adze, and a black stone object that was possibly the body of an Early Neolithic tool (oval in cross-section), were both found in one field on a small hill farm on the mountain back of Minglanilla, while the farmer was levelling a small hillock or mound, in 1937.

Bronze-and Iron-Age remains.—No true Bronze-Age artifacts have yet been reported from Cebu, but Late Iron-Age remains certainly exist. Most identified specimens are in my own collection, and it will be more convenient to discuss them in connection with the Porcelain-Age sites, below.

Porcelain-Age finds in general.—Cebu Island is truly a mine of ancient porcelains and other artifacts of pre-Spanish times. Morga relates how diligently the Japanese were searching for ancient porcellaneous wares there in the 16th century, and we are still finding other deposits in the same areas that they covered. (It was perhaps fortunate for our present research, however, that Japan was closed to the outside world—temporarily in 1624, and permanently in 1640.)

In modern times, also, Cebu has been the field most worked by ceramic collectors, some scientifically inclined and many otherwise. Some of these collections have been taken to the United States, France, England, Japan, and China; others were destroyed during the war. It will be mainly our purpose here to discuss only those that have scientific importance, particularly in relation to specific sites or unusual finds, collections lacking definite records to be disregarded.

Among the latter are the following collections, all formerly in the hands of residents in Cebu City: The very good Sequera Collection (mostly of selected celadons); the Rodrigo Velez Collection; and smaller collections in the hands of Doctor Patalinhob, Mr. Gibberson, Mrs. Briones; Mrs. Pascual, and a few others. Also the Kenneth B. Day Collection, in Manila, some pieces of which were of exceptionally fine quality (several photographed and measured for my records.)

The earlier Cebu collections of Major Eugene de Mitkiewicz (mostly acquired by Dean C. Worcester and W. Cameron

Forbes) will be referred to only where I have records of specific finds; and the same will be true for the Dean C. Worcester Collection, which was afterwards combined with Guthe's Michigan Expedition material.

The former National Museum Collection, made by the late Manuel de Iriarte with advice from myself, was mostly from Cebu Island—the pieces having been collected chiefly by Mrs. Pascual and the Abella family. Most of them were photographed for my records, but very few specimens had any adequate site data. (More than half were destroyed during the war.)

Doctor Guthe's Michigan Expedition Collection.—During his 1922–1924 work Doctor Guthe recorded 204 sites in Cebu, excluding 11 others marked "miscellaneous" or "doubtful." Of the accepted sites 17 were caves, 65 burial-grounds, and 122 individual land-burials or accidentally excavated graves. While records of these sites exist in the Michigan Museum, Doctor Guthe's report lists the contents of only two, which may be described briefly as follows:

The first was a burial-ground on a hilltop, located about 20 kilometers southwest of Cebu City, later destroyed by the operations of the Naga cement works. Doctor Guthe and his party spent three days excavating the site. Thirteen skeletons were found, buried at full length, and with only a few inches of earth remaining over them. The following additional specimens were obtained—mostly associated with the burials: 6 green ceramic specimens, 2 gray, 1 white, and 2 brown; 1 blue-and-white and 4 black-and-white ceramic specimens; 1 dark-glazed jar and 2 unglazed stoneware pieces; 3 pieces native pottery; 3 iron tools or weapons, and 1 stone specimen; 3 beads; 2 shell specimens; 1 bone; and 5 miscellaneous; or 37 specimens in all.

The second site was one originally reported by Juan Abella, Guthe's chief field agent in Cebu. It is described as a single burial at full length, about 20 inches below the surface. Located in Talot barrio, near the town of Carcar, on the southeastern coast of the Island. The following specimens were either associated with the burial or were picked up on the surface nearby: 33 ceramic pieces and fragments, of which 28 are green, 3 grey, and 2 white (indicating a pure Sung-period site); 1 iron tool or weapon; 1 gold ornament; 1 stone specimen; 1 bead; and 3 shell ornaments; or 40 specimens in all.

A large number of other whole and broken ceramic pieces were obtained from agents, without reliable site data.

Beyer General Philippine Collection; Cebu Section.—My Cebu specimens were all originally put into what was known as the "General Philippine Collection" with key-letter "G". As 80 per cent of the "General" collection came from the Visayan Islands, it was later split into two parts—one part being called the "Visayan Islands Collection", but the key-letter on

the specimens has not been changed. This Visayan Islands Collection is the largest of all our collections outside the major Rizal-Bulakan and Batangas areas; but, for the purposes of the present paper, it will be more logical and satisfactory to follow the original catalogue arrangement and terminology.

The material may be divided under three general heads, one of which may be treated very briefly. For Cebu this latter heading covers more than one-half of the total material, and consists of those specimens for which we have no accurate site data. The basic reason for the quantity of this material is as follows: Doctor Guthe's three years' work in Cebu stimulated a great deal of private collecting and a certain amount of commercializing of the "antique" trade there, so that many valuable specimens were passing into private or foreign hands, and being lost to scientific record. The only practical way to stop this was to buy up all available material in private hands, together with such records as were available, which were usually at least sufficient to define the general area from which the specimens came. (Such material is of much value for typological and "general area" studies, when supported by a sufficiency of true "site" material from systematic work.) The specimens were mostly gathered by a group of trustworthy agents (some of whom had previously worked for Worcester or Guthe), passing from town to town and through the countryside, and their work resulted not only in accumulating much valuable material, but also in locating a number of important new sites and areas.

Of the materials for which site records are available, we may first consider a group of miscellaneous early collections, after which the work of my two most efficient field workers and collectors, Crisogono Saceda and Pedro Menguito, will be taken up.

Various early explorations and collections.—Some time in July, 1929 Marcelo and Juan Abella, under the supervision of Major Eugene de Mitkiewicz, excavated a small group of very early graves in the central part of Cebu Island just back of Cebu City. Twenty-seven pieces of Sung porcelain and stoneware were obtained, which were brought to Manila uncleaned and still filled with the original earth. All of the pieces would normally be dated as being between the 11th and 13th centuries, and it is obvious that we had here an undisturbed burial place of the 12th or 13th century. None of the skeletal material was collected, as it was badly disintegrated. Nearly half of the ceramic pieces were celadons of varying quality, six being definitely of Lungchuan ware, while the others were partly white T'ing wares, grey or brown jarlets, saucers, and bowls, plus one small curious ewer or water-pot with a handle and spout. The largest was a fine deep dish of Lungchuan ware, 14 inches in diameter; while

a covered celadon jar, 8 inches in diameter, is also noteworthy. (No jewelry or metal objects were found.)

On June 4, 1930, M. Kelley, of Cebu, brought me three sample specimens and an interesting account of some finds on Camote Island, in the eastern part of the province. These specimens and a number of others were found washing out of a medium high bank near the beach, in Santiago barrio. The first specimen is a piece of a finished but broken shell-bracelet, the second is a piece of *tridacna* shell from which a large disk has been cut by a circular drill, and the third is a shell disk which just fits into the opening in the second piece. In other words we had here a shell-bracelet factory—and what Mr. Kelley found was the midden dump of wasters from such work. He states that at least a good-sized basketful of such wasters could be gathered there. The shape and characteristics of these bracelets seem identical with those found in so many 12th to 16th century burial-places, caves, and other sites throughout the central Visayan Islands—and this factory doubtless dates from somewhere within that period.

In July, 1932, Irineo Quiñanola, an employee of the University Library, made some interesting finds in an old burial site located on a gently sloping hillside about half a kilometer above the creek or small river running through Anao barrio, about 10 kilometers from Malabúyok, southwestern Cebu. Many graves had been found from time to time on this formerly forested hillside, first put under cultivation in recent years, and some of the porcelain specimens found had been sold to collectors in Cebu, and perhaps some to my own agents. The material brought by Quiñanola, is mostly fragmentary, having been gathered around the formerly excavated graves, but it is nevertheless of unusual interest. In addition to good broken pieces of 14th and 15th century wares, both Sawankhalok and Chinese, there are three pieces of unusual shell-bracelets, two iron dagger blades or small spearheads, and three iron knives or other tools. (For later notes on this site, see Menguito's work, below.)

Collecting work of Crisogono Saceda and his brother Pedro.—In January, 1931, Pedro Saceda found a small undisturbed burial-ground in a field, about half a hectare in extent, a short distance inland from Argao town. Following my instructions, he carefully excavated two or three adjoining graves of the land-burial type, and brought the resulting specimens to me in Manila uncleaned and still filled with the original earth. He also obtained another good piece accidentally plowed up in the same field by the local farmer, whose discovery had originally led us to the spot. Thirteen whole ceramic pieces were obtained in all, of which four are Chinese 15th century types (one celadon and three blue-and-white), six definitely Sawankhalok, and the remaining three of supposed Southeast Asia origin (one "red-bottomed", and two of

the peculiar and distinctive blue-and-white pineapple or cactus design). The finding of the above group of wares together, in what appears to be definitely a 15th century group of graves, established a landmark in our ceramic chronology. All of the significant pieces can be dated definitely within the first half of the 15th century or the last half of the 14th century, as to period of manufacture.

Also early in 1931 Crisogono Saceda brought in two very significant lots of material from two widely separated areas—the region just back of Cebu City, and the Ginatilan area near the south end of the Island.

The first lot came from a single grave, at a place called Himamawan, very near the locality called Pañgol, in the mountains back of Cebu City, where the Forbes type-specimen of the "'pineapple" type jarlet was originally found by Major Mitkiewicz prior to 1920. The Himamawan grave lot was also brought to Manila uncleaned and with the original earth fillings still intact, and when we carefully cleaned it up, in the laboratory, Saceda and I had one of the most pleasant surprises of our Cebu work. In addition to several ordinary pieces of usual 15th century types, the lot contained the most perfect specimen we have ever found of the curious blue-and-white "pineapple" type jarlet. And upon our carefully removing the earth, we found inside twenty-three small gold beads and tiny rings of twisted gold wire. The "pineapple" type of jarlet, of which we now have some ten different specimens, has been the object of a special manuscript study by me—shortly to be published—but we have not yet determined the exact provenance, although it seems fairly certain to be somewhere in Southeast Asia. (Neither the bodyware nor the designs are Chinese in type, and it shows distinct kinship to the interesting Southeast Asia group of "red-bottomed" wares.) The gold beads are rather distinctive, but show the same general welded "pellet" type of structure so characteristic of old Philippine gold work everywhere. (Another 14th or 15th century gold finger-ring of similar workmanship was later obtained from an Argao site.)

Ginatilan area.—In addition to uncovering the first definite Late Neolithic site in Cebu, Saceda's 1930–1931 work at Ginatilan produced many other interesting finds, and led ultimately to this area becoming our most important field of systematic work in the entire Island. The best work was done there in June, 1932, when a group of adjoining burial sites in the barrio of Banilad was more or less systematically excavated by Saceda and his brother, following my directions. Later Pedro Menguito continued the Ginatilan work, bringing in two good lots of material, in August and September, 1932, and a third good lot in February, 1933.

The Ginatilan area contains a number of sites, the most important being those located in and around Banilad barrio.

What may be termed Banilad Site No. 1 contains three distinct horizons:

(*a*) *Late Neolithic.*—Containing adzes, barkcloth beaters, worked mullers or hammer-stones, etc.

(*b*) *A Late Iron-Age* period of inhabitation, shading into the time when Late Tang and Early Sung porcelains appear.

(*c*) *A Middle Porcelain-Age* period, probably confined to the 13th and 14th centuries only, in which Chinese wares appear associated with early Chaliang and Sukhotai, and perhaps some Kalong and Indo-China monochrome specimens also.

One grave, in this site, containing only Sung-type porcelains, produced also a whole shell bracelet and five much corroded green-and-blue glass beads of medium-large size. Several excellent celadon bowls, of typical Early Sung Korean and North China form, were also obtained.

In what appears to be the mixed Late Iron-Age and earliest Porcelain-Age section of the site, a most interesting collection of partly disintegrated beads and better-preserved glass and shell bracelets, and some other ornaments, were found associated with native pottery fragments and a considerable number of disintegrated iron weapons and tools. Some large pottery beads or net-weights (similar to those from the Tagig Site, in Rizal Province) were also included. In one part of this same area Tang-Sung ceramic fragments were found, and at least two graves containing whole Sung porcelain pieces.

At least half of the beads found, including some of agate and carnelian, are distinctively of Iron-Age types; but some of the others, and several of the larger paste bracelets, are more like Early Porcelain-Age types of probable Cambodian or other Southeast Asia origin. Some of the translucent glass bracelets, particularly the dark cobalt-blue types, also closely resemble some that I have seen in the Hanoi Museum—found in Cambodian or other Indo-China sites.

Banilad Site No. 2.—This site first found by Saceda but more extensively explored by Menguito, lies in a *kaiñgin* on top of the hill just back of the first Banilad site, and seems to be chiefly of 15th century date. This site contained both a midden site and a small burial-ground, and a number of good Chinese blue-and-white porcelains (including three large dishes) were obtained there.

Additional Ginatilan finds by Menguito.—Near Banilad, but not connected with the first two sites, Pedro Menguito later found several other small burial sites and midden dumps—mostly seeming to date between the 14th and 16th centuries, but including at least two of earlier Sung-period type. From these he obtained a total of twenty-one whole porcelain pieces

of interesting types, in addition to several large packages of fragments, a few shell bracelets, beads, and metal objects. Some curious shell earrings, and two beads of old Greco-Roman types, are especially worthy of mention. Also one turquoise bead, a rare article in Philippine sites.

Menguito also found in the barrio of Conyorong—a considerable distance from Banilad—what appears to be an old broken-down cave, or rock shelter, some distance inland from the present coastline. Here, in addition to a considerable fragment collection, he dug out an interesting whole Sawankhalok celadon dish of large size and of an early type (probably 14th century), but it is unfortunately covered with a tough lime deposit which is difficult to remove.

The whole Ginatilan area is still worthy of extended systematic exploration, as there are doubtless still many other valuable finds to be made there.

Other collecting work in Cebu by Pedro Menguito.—Additional work in and around the Anao barrio site, at Malabuyok, was done by Menguito in 1932–1933. Besides securing five good whole ceramic pieces, he obtained considerable data about the site which seems to indicate that it is definitely of the 13th and 14th centuries, and not quite as late as previously thought. It may be that one or two later graves were intruded into the area.

The productive Badiang area.—This area, also on the west coast some distance to the north of Malabuyok, was the scene of Menguito's chief collecting activity in 1932-1933, and proved to be one of the most productive areas yet found in Cebu Island. The best sites are in and around the barrio of Bugas, although some other neighboring barrios were also explored.

Results show that the Bugas barrio area was inhabited chiefly during the 13th and 14th centuries—more than two-thirds of the porcelain pieces found being of Late Sung and Yuan dates. The midden-dumps in the area are also at least 60 per cent definitely pre-Ming. Only a very small percentage of non-Chinese wares, indicating intercourse with Southeast Asia only near the end of the period. And only one whole blue-and-white piece came from the entire area. Apart from more than a score of interesting ceramic pieces and quantities of midden fragments, the area produced seven bracelets (two being of unusual types), fourteen old beads (three of Greco-Roman types), and quantities of more-or-less disintegrated iron weapons and implements.

Such Ming remains as appear in parts of the Bugas area are separated, in point of time, by more than a century from the earlier period of inhabitation; as they date only from the late 15th and 16th centuries, while the earlier period came to an end about the middle of the 14th century, if not before.

Other sites.—In January, 1933, Menguito found a new site in the barrio of Buad, between Oslob and Caceres on the

southeast coast. This produced twelve good ceramic pieces, probably all of 12th or 13th century types.

In November, 1932, both Saceda and Menguito collected a number of fair quality specimens from a barrio called Laguasan (or Lagnasan), in Caceres municipality. Saceda obtained ten good ceramic pieces (mostly celadons) and Menguito one, all apparently Sung or Yuan productions dating between the 12th and 14th centuries. Most of them were excavated in one field, by the farmer owner, under Saceda's direction; and no beads, bracelets, or other ornaments were found either in the graves or in the field, while practically all of the skeletal material had disintegrated.

Cebu-Carcar Road finds.—While a new section of the Cebu-Carcar road was being built through Valencia barrio (of Carcar municipality), early in 1933, two early graves were uncovered containing Sung celadon dishes and a remarkable collection of old beads and opaque paste bracelets. Menguito saw the dishes but was unable to obtain any of them, as they were all appropriated by the legislative representative from that district—but he did acquire eight whole bracelets, one broken bracelet, and thirty-four of the beads. Thirty of the beads were of Greco-Roman types, the largest single hoard of such material that has yet been found. It is obvious that these two graves were those of wealthy men, or chieftains, and it is possible that the graves also contained some gold ornaments which were sequestered by the workmen. Six of the larger bracelets (red-brown, orange, yellow, green and cobalt-blue) are of the types that I believe to be of Cambodian or Southeast Asia origin.

Another bead find.—In June, 1932, a farmer accidentally excavated an early burial in a kaiñgin in a mountain barrio of Dalaguit town, lying back of a point about halfway between Oslob and Argao. This find may be genuinely Early Iron Age, as neither the farmer nor Menguito who visited the place, could find any porcelain fragments in the field. Common potsherds, rather finely broken through cultivation, were fairly common; and they all seem to be of recognized Iron-Age types. Among the beads obtained by Menguito from the farmer are three large carnelians (all more or less damaged by fire) and three Greco-Roman beads of the earliest types known in the Philippines (two "eye" beads, and one early spiral type). These beads are practically identical with those found in the Novaliches Iron-Age sites of Rizal Province, where they date back to a little before the beginning of the Christian Era.

Saceda's finds on Babag Mountain.—In April, 1933, Saceda found an interesting new site on Babag Mountain, in Guadalupe municipality, just to the east of a point halfway between Malabuyok and Badiang. Several kaiñgins were explored and were found to contain only monochrome porcelain

and native pottery. Several whole native pottery pieces were said to have been found by the farmers in the bead-containing graves, but all of them had been broken up by the farmers' children before Saceda's arrival. The objects of chief interest, however, are the beads glass bracelets, and ivory hilt ornaments. (No less than 223 medium-sized beads, and five ivory hilt-ornaments, were found with an orange paste bracelet of extra large size.) The evidence seems to indicate a mixed Sung-Porcelain and Late Iron-Age site, similar to several others discussed above beginning with Banilad barrio.

Further finds back of Cebu City.—In 1933 Menguito visited the Himamawan (or Mamawan) site, previously discussed, and obtained five more unusually good pieces, of which four were 14th and early 15th century Sawankhalok wares of chronological interest.

Three other finds from Cebu and vicinity are worthy of mention: From the waterworks area, back of the city, came a Ming Buddha-image (15th or 16th century) of a greyish-white jade; two other almost identical specimens have been found in Cebu Island sites. A second find, obtained from a resident of Tisa barrio, who claimed to have excavated it on his hill farm back of the City, is a very good Middle Ming blue-and-white jar, 18 inches high, with six ears and a deep violet-blue design, collected by Saceda. A third find, collected by Menguito, is a dark olive-green Late Sung or Yuan celadon dish, which was excavated and broken while digging postholes for a house in Talambang barrio.

Kandulawan Mountain Site.—In April, 1933, Saceda traced another reported find to certain fields and kaingins on Mt. Kandulawan, in the municipality of Talisay. This brought to light another fine lot of early beads (much corroded) and bracelet specimens—this time, rather curiously, all of orange-yellow and milky-green colors only. All of the 114 paste beads are said to have been found in two adjoining graves, accompanied by two large yellow-paste bracelets. Only native pottery and monochrome porcelains were found with them; and the whole set-up appears to be very similar to that of the Babag Mountain finds previously discussed. (This site is not very far from the main south road, and further exploration should be carried out there.)

General Cebu Porcelain-Age data.—The specimens from the above listed sites, together with our miscellaneous Cebu pieces, totalled more than 1,200 whole or nearly whole ceramic specimens (of which about one-half were destroyed during the war), together with more than two tons of ceramic fragments, and a large number of ornamental objects (more than 1,000 beads and bracelets), tools, and miscellaneous material. (Of the ceramic material about two-thirds is Chinese, and one-third non-Chinese—most of the latter being Southeast Asia, less about 5 per cent of native wares.

Workers.—(As listed under the preceding various items.) Also Pedro and Teresa Abella, E. Duterte, and the late Engineer Crespo, of Fernandez Hermanos. [See Addendum for further data on Cebu.]

47. *Negros Island* (*Oriental and Occidental Negros Provinces*):

(This island, anciently known as *Buglas*, has been but little explored archaeologically except along parts of the eastern coast; but several very important accidental finds have been made. Historically, it is the source of some of our most important records; and it should receive more specific archaeological attention in the future.)

Tektites.—I have examined only one genuine natural tektite from this Island—a well-grooved and pitted discoidal specimen in the hands of Fr. Miguel Selga, about 6 centimeters in diameter and said to have been found in a sugarcane field in the north-central part of the Island. (It shows some signs of wear, and may possibly be a transported specimen brought there as a charm-stone.) No pre-Neolithic Stone-Age remains are yet known from Negros.

Neolithic finds.—Two plain backed Late Neolithic adzes of fine quality have been found at widely separated points in Negros Island; while a probable fragment of a Late Neolithic spearhead was found by me near Dumaguete in 1939. The first adze reported to me was found around 1930 at the San Carlos Sugar Central, while excavating for building a shed. The specimen was taken to the United States by one of the members of the technical staff.

The second and best adze is in the hands of Dr. Cornelio C. Cruz, and is a fine large rectangular specimen, well polished and made of a mottled red agate or carnelian (or possibly an unusual variety of nephrite, as it has not been tested mineralogically). It was found while a ditch was being excavated in a sugarcane field, near the Malogo River, at Victorias, western Negros, about 1929. (I have photographs and measurements of the specimen.)

Early Iron Age.—One of the most interesting finds yet made on Negros Island is that of an Early Iron-Age clay pot, with incised decoration and in perfect condition, which was found in 1913 by workmen excavating a guano deposit in a dry cave near the barrio of Taboso, Escalante municipality, in the northern part of the Island. This was brought to me in the same year by the late Fred L. Pray, and was still partly filled with a black substance that was probably charred food. When found, it was buried with four other similar decorated angle-pot specimens under a little over 2 meters of bat-guano, but the other four pieces were unfortunately broken by the workmen, and the fragments thrown away. Two of them are said to have been larger, or at least taller, than the present specimen. Pray's study of the guano caves, and my own

study of the characteristics of this specimen, both lead to the opinion that this pot dates back to the beginning of the Christian Era, or a little earlier. (Further investigation of this area should be carried out, and the talus from the caves should be excavated and screened for potsherds and other objects.)

Porcelain-Age explorations.—Very little work was done in Negros Island by the Michigan Expedition of 1922–1924, and Doctor Guthe lists only one site (a cave) visited in Occidental Negros without any details as to location or possible finds. In Oriental Negros, however, Mr. Worcester had found and excavated a very interesting large burial ground at Vallehermosa before the Expedition arrived. In addition to this, Doctor Guthe lists only 5 other sites of which two are marked miscellaneous or doubtful, while the remaining three are individual land-burials or accidental finds only.

The following details are given concerning Mr. Worcester's excavation: The site was near the village of Tabon, just south of Vallehermosa town, and consisted chiefly of jar-burials. The following ceramic specimens were found (the number of whole pieces not being indicated): 46 green, 22 grey, 12 white, and 14 brown-glazed; plus 2 dark jars, 2 unglazed (stoneware), 13 pieces of native pottery, and 2 unclassified. Of other objects, there were 2 iron, 2 copper or bronze, 4 gold ornaments, 1 lead, 1 glass, 2 stone, 3 shell (bracelets?), 1 bead, 3 skeletal, and 1 miscellaneous, making a total of 133 specimens in all. (No blue-and-white, or other polychrome specimens of any type, were found. It is therefore obvious that this is a Sung-period site, and possibly a very early one; and it would be interesting to have an account of the material obtained fully written up. It is a real handicap to other workers that so little of the Michigan material has been adequately described.)

Saceda's collecting in Oriental Negros.—Most of the specimens in my General Philippine Collection from eastern Negros were collected by Crisogono Saceda in 1930. Although he made small collections from several sites, only one seems to be of major importance—located in Lupak barrio of Mañguyod municipality.

The Lupak barrio site.—As found the site lies in and along the edge of a river bank in Lupak barrio, and appears to consist of a large midden site bordered by or interspersed with a group of Porcelain-Age graves dating chiefly from the 12th to the 14th centuries. One edge of the midden site shows a little early 15th century material; and it is possible that the lower strata of the deposit go back to a time before the 12th century. As a whole the midden site runs about 75 per cent Chinese wares, and 25 per cent Siamese (mostly Sukhotai), Cambodian, and other Indo-China material. (One fragment of an orange paste bracelet, and a few pieces of native pot-

tery, seem to have come from another area outside of the Lupak Site proper.)

However, the most striking feature of the Lupak Site is the presence of a whole (but damaged) Cambodian large vase, from one of the graves, and several fragments of the same ware washed out from the midden deposit along the river bank. (The question here is: "Did these apparently 10th century Cambodian pieces come to Negros with the definitely 14th century Sukhotai wares, or at some earlier time?")

The Pavon and Loarca historical data.—As Miguel de Loarca's 1589 narrative has fortunately been printed in full in volume 5 of the Blair & Robertson series, it is unnecessary to do more here than to mention that it contains invaluable data concerning the pre-Spanish history of Negros, as well as concerning the grouping, characteristics, and customs and beliefs of the inhabitants.

The three surviving columes of Fr. José Maria Pavon's manuscripts (originally in nine volumes of which six have apparently been lost), written in Himamaylan in 1838–1840, were obtained for the National Library in 1912–1913 by Dr. James Alexander Robertson with the aid of José E. Marco, of Pontevedra. These volumes, entitled "Las Leyendas de la Ysla de Negros" (parts 1–3), contain—in addition to much folklore and ethnological observation—a remarkable series of ancient documents translated from originals in the old Visayan syllabary, allegedly dating from the year 1372 and after. They were accompanied by three actual documents written in the old syllabary, on a kind of palm-bark with cuttle-fish ink. (The originals of all the Pavon and bark manuscripts were destroyed with the National Library during the war. Fortunately, however, I still have good photographs of the bark manuscripts and of many Pavon pages, as well as complete typewritten copies of all.)

In addition to Pavon's rich data on pre-Spanish customs and events in Negros, he also provides a lengthy list of ancient fortifications and monumental remains. (The sites of these, wherever still identifiable, should be carefully explored archaeologically.)

He further states that documents in the ancient writing were still fairly plentiful among the pagan mountain people in 1838, although only a few native priests and magicians could read them, and they were treasured chiefly for their magic properties. (Search should be made for any still in existence.) In his day the Negritos were still quite numerous, but the lighter skinned mountain folk were known as "Mangyanes." (What is their relationship, if any, to the Mangyans of Mindoro, Tablas, and Sibuyan?)

Workers.—As indicated under the preceding various items. Also Luther Parker, Emilio B. Tarrosa, Francisco Varona, Dr. Juan Mañanos, Mountaineer Ynoy, Juan Collado, Norberto Romualdez, and others.

48. *Guimaras Island (part of Iloilo Province):*

(This island is rather flat, and archaeological discoveries have been few. No remains prior to the Porcelain Age have been reported; but the island has long been thickly inhabited, and systematic search might produce surprising results. No specific sites have been reported (except one indicated but not named by Doctor Guthe), but a few individual land-burials have been accidentally excavated from time to time. The only ceramic pieces that I have seen, reported to have been found in this Island, were of Yuan or Early Ming dates.)

Workers.—(None; except one visit by Dr. Carl Guthe.)

49. *Panay Island (including Iloilo, Capiz, and Antique Provinces):*

(This large island, of varied topography and ancient population history, should be one of our richest archaeological fields. Unfortunately, however, it has received but little attention; and, although a number of interesting accidental finds have been made, systematic work has been carried out in only two or three small spots. As with Negros we have also ancient and important historical records to bolster our archaeological findings.)

Tektites and palaeoliths.—Fr. Miguel Selga has examined three small genuine tektites from Panay, all said to have been found in Capiz Province. Several of my students, who have seen our Manila collections, have also told me that such objects are occasionally seen in the fields, in at least two parts of Capiz Province. However, despite repeated promises, I have yet to receive the first genuine specimen.

About 50 small or medium-sized mesoliths, or possible late palaeoliths (mostly of green, orange-yellow, or red-brown cherts), were found by W. S. Boston in the Tigbauan Site (to be hereafter discussed), as well as a few large cores. One much worn obsidian implement was also found there—the first obsidian specimen yet definitely located south of Luzon. (Unfortunately all of this material was destroyed with the Bureau of Science, during the war, and cannot now be reëxamined.)

Neolithic-, Bronze-, and Iron-Age remains.—Neolithic adzes have been repeatedly reported from Panay as "lightning-stones," but I have yet to see the first specimen. No Bronze-Age or early Iron-Age remains have yet been reported, but I have no doubt that they exist there, and would soon be brought out by properly conducted systematic work. (However, see Boston's work at the Tigbauan Site.)

Porcelain-Age and cave remains.—The first reported exploration of Panay burial-caves was on the trip by Merton L. Miller and Luther Parker in December, 1912. Two caves, high up on a cliff near Pilar, Capiz Province, were found to contain carved wooden coffins, more or less disintegrated bones, and considerable ceramic material, mostly Chinese. The big molave coffin (with a carved iguana or crocodile on the cover) for-

merly in the National Museum was obtained here; also a small jar of the 14th or 15th century. Other caves were visited at Dumalag and Dingle, but nothing of importance was found. However, at Dingle (Iloilo Province), two very good large 15th century blue-and-white Ming dragon jars, said to have been excavated from a small mound under a huge ancient *balete* tree, were obtained by Doctor Miller. Each contained a small whole 15th century blue-and-white jarlet inside. (One of the big jars and the two jarlets are still in the Museum collection, the other large jar having been taken to Los Angeles, California, where it probably still is.) Three old pieces of native pottery, said to have been plowed up some 60 years previously in a nearby field, were also obtained.

Reports were also received of other burial-caves at Balasan, on Panay, and on the small Gigantes Islands off the northeast corner of Capiz Province, but these caves were not visited.

Doctor Guthe did not work in Panay, but reports only two accidental finds from individual land-burials, in Iloilo Province.

Jamindan find.—In 1939 the father of Hermogenes N. Martir accidentally uncovered a large 15th century blue-and-white dish of good quality on his farm near Jamindan, Capiz Province. Digging around the place, he found a large 15th century blue-and-white jar, also of good quality. Martir brought the dish to me, but his father still has the jar. (No other pieces were found, but the excavation was perfunctory and the place might well be investigated systematically.)

Antique clay-pipe.—A very interesting and unusually large clay-pipe with decorated bowl, was found in 1935 while an excavation was being made on a hill in Antique Province, and was presented to me by Mr. Fernando Arnaldo, the district engineer. It seems likely to be an 18th century type, but is difficult to date in the absence of associated ceramic specimens.

Boston's Tigbauan finds.—This Site, systematically explored by W. S. Boston while supervising the building of a bridge across the Tigbauan River, in the latter part of 1930 and the beginning of 1931, covers most of a sizable hill known to the local people as "Binayáan." The hill, a little to the east of the town, is from 20 to 25 meters high, and faintly discernible old terrace lines indicate continuous occupation for a long period.

The total collection consists of five whole porcelain pieces, about 350 kilos of ceramic fragments, and a considerable number of miscellaneous specimens—including iron weapons and tools, heavy metallic slag, stone and glass beads, other ornaments, and a small collection of about 50 flaked stone implements.

The chief period of occupation of the site was the 15th and early 16th centuries. There was practically no occupation there after the Spanish arrival. One of the two graves excavated belonged to the 15th century period, but the other is considerably earlier—perhaps 13th century, as it contained a

good Lungchuan dish. A few midden fragments from the earlier period are also found, but it is probable that the occupation then was brief.

The Siamese fragments in the principal midden collection are from 8 to 10 per cent, but they are all of the later types of Sawankhalok wares. The earlier brief period of inhabitation was not only pre-Ming but also pre-Sawankhalok.

It is probable that there are other sites in this vicinity which Boston did not locate; further exploration should be carried over a wider area. More Tigbauan midden material and stone implements should also be gathered, as nearly two-thirds of our collection (including all implements, beads, and other material) was destroyed during the war.

Pre-Spanish Historical Records: The Maragtas.—A remarkable ancient document known as the Maragtas", dating probably from about 1225 A.D., was preserved in Panay and transliterated into romanized Visayan in early Spanish days. Copies exist in the old records of several towns, in all three of the Panayan provinces; and the full text was first put into printed form by Pedro A. Monteclaro, in Iloilo in 1907. (An earlier Spanish version was recorded in Janiuay in 1858 by Fr. Tomas Santaren, and first published in Manila in 1902.) An original in the old syllabary is said to have been taken to Spain in the early 19 h century by a Spanish colonel, but it can no longer be traced.

The document contains a wealth of data on pre-Spanish Panay, and it is undoubtedly the most important single document in early Philippine history. Together with the Pavon manuscripts from Negros, it constitutes a real foundation for the history of the Visayan People in Borneo and the Philippines.

Workers.—(As indicated under the preceding various items.) Also Fr. Angel Perez, Josue Soncuya, Encarnacion Gonzaga, Purificacion Varona, José Celeste, Angel Soncuya, Isabelo de los Reyes, José Maria Pavon, Ramon P. Locsin, Ismael Golez, Tomas L. Mobo, Maria C. Lanzar, Consuelo Picazo, Pacifico R. Palanog, H. Kern, and others. [See also Addendum.]

50. *Cuyo Islands (part of Palawan Province):*

(These ancient inhabited small islands played an important part in Philippine history in the 15th and 16th centuries, and probably earlier. There has been little or no archaeological exploration as yet, but the prospects for future work are good, especially on the main Cuyo Island itself, on Agutaya, and on several of the smaller and more hilly islets. No pre-Porcelain Age material is yet known, and the Porcelain-Age finds have all been accidental without recording of specific sites. I have seen no specimens earlier than the 15th century, but I believe some could be found by proper systematic work.)

Workers.—A. Henry Savage-Landor, Irvin D. Cobb, A. V. H. Hartendorp, Trinidad R. Fernandez, and Patricio Fernandez.

51. *Kalamian Islands, especially Busuanga (part of Palawan Province):*

(This group consists of Busuanga, Coron, Culion, and many small islands, originally inhabited chiefly by pagan Tagbanuas. Culion has, since early in the American regime, been set aside as a leper colony—and most of the island is now uninhabited. It would be an ideal place for undisturbed archaeological work, if any proper sites could be located there. It is probable that all of these islands have been anciently inhabited, and more extensive work should be done there in the future.)

Tektites.—Busuanga contains the richest natural tektite sites yet found outside of Luzon. The specimens are deeply sculptured and grooved, and belong mostly to the Billitonite group. (My collection contains about 1,200 good specimens from this Island, mostly found in the "Sandoval" Site, and in the barrio of San Nicolas, Coron municipality. They were acquired chiefly through the good offices of Mrs. Amelia E. Zaldua, Messrs. E. D. Hester and J. Scott McCormick, and the late Representative Claudio Sandoval.) The first Busuanga tektites were collected in 1931 by Teodoro and Mariano P. Maat, of Coron. (Mrs. Zaldua sold a number of Busuanga specimens to the British Museum, and to museums and collectors in Germany, France, and elsewhere. Several American mining engineers, including Churchill Scott and the late A. F. Duggleby, also collected tektites in Busuanga, but the total number outside my own collection is probably less than 200 specimens.)

Stone-, Bronze-, and Iron-Age remains.—None reported as yet, except that some of the material collected by Doctor Guthe from Coron caves may really be of the Iron Age.)

Porcelain-Age and burial-cave remains.—Dr. Carl Guthe explored and excavated two cave-burial sites on the small island of Peñon de Coron, where Edward H. Taylor had previously reported seeing caves containing interesting remains.

The first site is a fissure in the cliffs on the northeastern coast, and the remains had been disturbed by water coming in from the top. Doctor Guthe excavated it, however, and reports the following finds: 5 green, 36 blue-and-white, and 5 overglaze ceramic specimens; 6 pieces of dark jars, and 6 of native ware; 1 iron, 5 copper or bronze, 1 lead, and 2 glass specimens; 1 stone, 6 shell, 1 bead, 4 skeletal, and 4 miscellaneous; or 83 specimens in all. (This seems to indicate a middle or late Ming site.)

The second site is a cave on the northwestern coast, and was explored by Doctor Guthe personally. The contents consisted almost entirely of highly ornamented and irregularly shaped vessels of native pottery. The following specimens are listed: 1 fragment each of green and blue-and-white porcelain; 86 pieces of native ware; 1 iron, 2 glass, and 4 shell specimens; and 3 skeletal remains; or 98 specimens in all. (Two periods; one possibly Iron Age.)

For further note on the Kalamian Islands burial-caves, see Addendum.

Workers.—(As indicated under the preceding various items.) Also A. Henry Savage-Landor, Dr. H. W. Wade, and others.

52. *Palawan Island (including Balabak, Dumaran, Linapakan, and other neighboring small islands (part of Palawan Province):*

(This area covers the greatest superficial territory of any Philippine geographical unit, being stretched out for several hundred miles. There has been no systematic archaeological exploration in any part of the area, owing partly to isolation and difficulty of transportation. Doctor Guthe explored several caves near the northwest corner of the main Island, but gives no account of the results. It is known that there have been a considerable number of accidental excavations of land-burials containing porcelain and other ceramic pieces, but most of this material is still in the hands of the native farmers. Mr. E. D. Hester has been the chief collector of such pieces, having obtained altogether over 200 good pre-Spanish ceramic specimens from two Palawan areas which will be discussed briefly below.

No tektites or pre-Porcelain-Age material of any sort have been reported from Palawan proper; but it seems very probable that such material might be turned up by systematic work, especially in certain specific areas known to have been long inhabited. It should be regarded as a favorable field for future work whenever opportunity offers.)

Porcelain-Age finds: Malampaya Sound area.—One good middle or late Ming dish of the polychrome overglaze decorated type was obtained by Mr. Hester from Captain Wallace, who formerly operated a lumber concession in the Malampaya Sound area. It was excavated by one of his workmen in a kaingin; but three other pieces obtained in the same area turned out to be 18th century blue-and-whites, and were probably merely preserved among the neighboring Tagbanuas as heirlooms.

Hester's Collection from Uling-uling.—On two visits, in April 1933 and in 1935, Mr. Hester obtained a total of 192 good pre-Spanish ceramic pieces, all accidentally excavated in the Uling-uling (or Oring-oring) district of southeastern Palawan. Of these, about 40 pieces are certainly of Sawankhalok or other Southeast Asia origin, while the remainder are all or mostly Chinese.

About half-a-dozen pieces seem to have come from a middle or late Sung burial-site in the vicinity; but the great majority of the specimens, however, are Early Ming pieces of the 14th and 15th centuries, and were all excavated by the pagan and recently Mohammedanized Tagbanuas of the vicinity in their new clearings and lately developed farmlands. Panglima Kalampisi greatly aided Mr. Hester in finding and collecting these pieces, and seemed to take considerable personal interest and pride in seeing that they were preserved for scientific purposes.

The late Capt. F. G. Roth also obtained a few similar pieces from the Uling-uling area, which were later transferred to the Hester Collection. (The entire original Hester Collection, with the exception of the specimens from Sulu and Pampanga, was placed on loan at the Chicago Museum of Natural History early in 1938, and thus escaped the wartime destruction that so seriously affected the collections remaining in Manila.)

Historical possibilities.—The first European writer to call attention to the survival among the pagan Tagbanuas of one of the ancient pre-Spanish syllabaries was Alfred Marche, in his interesting volume entitled "Lucon et Palaouan" (Paris, 1887), where the greater part of Chapter XV is devoted to the subject (quoting Alphonse Pinart).

In later times Manuel Hugo Venturello, Norberto Romualdez, Ignacio Villamor, and Fletcher Gardner have discussed this subject more fully; while at the present time Harold C. Conklin is engaged in a systematic study of both the language and writing. (A number of lengthy Tagbanua bamboo manuscripts formerly existing in the National Museum were destroyed during the war; but copies of most of them survive in my collection.)

Although no inscriptions on stone have yet been located, either in Palawan or in Mindoro, it seems possible that proper archaeological exploration in the areas where this old writing still survives might be productive of important results. (In any case, other survivals from pre-Spanish culture and possessions should certainly be located.)

Workers.—(As indicated under the preceding items.) Also Edward Y. Miller, Eli A. Helmick, Dean C. Worcester, H. O. Beyer, and others.

59. *Cagayan Sulu Island (part of Sulu Province):*

(This small island in the central Sulu Sea has been an important trade center from very remote times. However, no pre-Porcelain-Age remains have been definitely reported; but the ceramic finds go back to the Late Tang period. Doctor Guthe reports a site there, but gives no hint of its contents. Most of the later finds are in the Hester Collection or in that of Mrs. Caroline Spencer at Indanan, Sulu.)

Porcelain-Age finds.—The oldest material from Cagayan Sulu came from the accidental excavation of one or two graves on the hill nearest the wharf at the town of Cagayan Sulu itself, in May, 1933. Mr. Hester obtained (through Lieutenant Arpa) three of the whole pieces excavated, while two others went to the collection of Mrs. Spencer at Indanan. These five pieces date between the 9th and 11th centuries, being either Late Tang or beginning Sung, and rank among the oldest class of porcelains found in the Philippines. About a month later Lieutenant Arpa sent Mr. Hester two other Sung pieces said to have been excavated on the same hill, together with a number of other pieces from a second locality of much later date.

The second site, from which two other pieces were obtained in August, 1934, is a short distance inland from the first hill, and all of the material found appears to be Early Ming and Sawankhalok wares, of the 14th and 15th centuries.

Mrs. Spencer's Collection is said to contain a number of other good pieces found on this Island prior to 1932, but without site indication. F. G. Roth told me that there were several early Indo-China (Thanh-hoa) pieces among the lot, but I have not personally examined them. (A complete systematic exploration of the Island should undoubtedly be carried out, if opportunity offers.)

Workers.—(As indicated above.) Also Antonio Pigafetta, and F. H. Guillemard.

54. *Camiguin Island (part of Oriental Misamis Province):*

(Although I visited this Island in 1921 and saw some very interesting Early Ming grave-pieces that were presented to W. Cameron Forbes by Mrs. Reyes, of Mambajao, during our visit there, I was unable to return for a further exploration of the sites as we then planned. The actual collecting on the Island, since that time, has been mostly done by Orville M. Babcock for his own collection, and by Generoso Maceda for the National Museum. No pre-Porcelain-Age material has been reported.)

Porcelain-Age remains.—Babcock's specimens from this Island number not less than 40 or 50, and include several rare or unique pieces. Maceda obtained over a dozen whole pieces, and a considerable quantity of fragments, chiefly from the grave sites. Two or three old sites were reëxamined, and one new site discovered. (Doctor Guthe marked one grave-site on this island, but did not indicate the contents.)

All of the Babcock and Maceda material is dated between the 14th and early 16th centuries (chiefly Chinese 15th century blue-and-white, with a small percentage of Sawankhalok wares), and consists almost entirely of small pieces. Jarlets, tea-pots, water-vessels, covered round and square boxes, and the like, predominate. Several rare or unique shapes and decorative designs are found. (It is probable that other good sites could be found by systematic work.)

Workers.—(As indicated above.)

D. MINDANAO AND THE SULU ARCHIPELAGO (WITH PARTS OF NORTH BORNEO AND CELEBES)

55. *Agusan Province:*

(A considerable part of this province is swampy and not favorable for archaeological work, although very favorable for the preservation of archaeological material. Nevertheless, there are some solid and hilly areas where collecting is favorable, and two of the most important Philippine finds have been made in this Province. No systematic work has been done, and no tektites or palaeoliths have ever been reported.)

Neolithic finds.—The first Neolithic stone implement to be scientifically reported from the Philippines came from Agusan, This was found by Dr. Karl Semper in 1859 or 1860, being carried as a charm-stone by a Manobo of the Agusan Valley. (Jagor's Camarines Sur Neolithic adze was found in 1860, and may possibly have been first. Both he and Semper deserve equal credit for the first Philippine stone implement finds, although Semper's data were first published.)

Two other Neolithic implements were found among the Manobos by John M. Garvan, during his ethnological work there, about 1910. The people regard them as stones thrown by the god "Anitan" in his wrath, when men have angered him.

Bronze- and Iron-Age remains.—(None positively reported as yet.)

Porcelain-Age finds and survivals.—Doctor Guthe did not visit Agusan Province, and furnishes no data on it. The Hester Collection contains two good pieces from Agusan, both of which came from Novela, in the Gibung district, in 1933. The first specimen is a good Chinese small blue-and-white vase or large jarlet, with a peculiar modified hole-bottom base. It is evidently 15th or early 16th century in date.

The second piece (obtained through Mr. Goco, of Butuan) is said to have definitely washed out of a caving riverbank at Novela. It is a large stoneware jar, with small archaic dragons high up near the neck, and appears to be a Yuan production of the 14th century or earlier.

No other actual pre-Spanish ceramic sites are known to me, although accidental finds of grave-porcelains are reported from near Cabadbaran.

Protohistoric and historic finds and records.—The most spectacular single find yet made in Philippine archaeology is that of the famous "Agusan Gold Image" (now preserved in the "gold room" of the Chicago Museum of Natural History), which appears to date from the 14th century or earlier. It was actually found in 1917, projecting from the silt in a ravine (following a storm and flood), on the left bank of the Wawa River near Esperanza. It was found by a woman who had entered the ravine, after the storm; and from her hands it passed into those of Blas Baklagon, a local official. He brought it to me in 1918, and I had it carefully photographed, measured, and tested at the Bureau of Science. As the bullion value exceeded 4,000 pesos (at the old rate), I tried to get the Government to purchase it for the National Museum, but funds were not available. Shortly after this, ownership of the image passed to the Agusan Coconut Company, to whom Baklagon owed a considerable debt. Finally, through the interest of Mrs. Leonard Wood, funds were found for its purchase by the Chicago Museum.

A study of this image was made by Dr. F. D. K. Bosch, of Batavia, in 1920, who came to the conclusion that it was made by local workmen in Mindanao, copying a Ngandjuk image of

the early Madjapahit period—except that the local artist overlooked the distinguishing attribute held in the hand. It probably had some connection with the Javanese miners who are known to have been mining gold in the Agusan-Surigao area in the middle or late 14th century. The image is apparently that of a Sivaite goddess, and fits in well with the name "Butuan" (signifying "phallus"). Pigafetta's account of the court of the "King of Butuan," whom he visited at Magellan's behest in 1521, bears this out—as the non-Mohammedan King of Butuan was apparently a survival from the old Madjapahit colony of a century earlier.

John M. Garvan further states that the Manobo chiefs knew of this image long ago; that one of their number kept it secretly hidden as a priceless *pusaka* (sacred heirloom) for an unknown number of generations; that it had been lost during a great flood which destroyed several villages during the late 19th century, and the guardians moved away to another district with a view to escaping the vengeance that they feared their ancestral spirits might wreak on them; and that after its re-discovery in 1917 they were afraid to claim it again. (The probable truth of this story is strongly supported by the number of bronze Sivaite and Buddhist images found by the early Jesuit Fathers among the Mandayas; the Siva image from Cebu; and other similar finds.)

Important historical and cultural data on northern and eastern Mindanao are given in Pigafetta's narrative; they should be correlated with the accounts of the first Spanish visitors to the region.

Workers.—(As indicated under the preceding various items.) Also Escolastico G. Zapanta, W. C. Bryant, J. Montano, Edward H. Taylor, Santiago S. Calo, and others.

56. *Surigao Province (including Dinagat, Siargao, and other smaller islands):*

Tektites.—Although Mr. Victor E. Lednicky states that Wallace E. Pratt and himself found a considerable number of tektites many years ago in placer workings and in cultivated fields in Surigao Province, I was never able to obtain any specimens or confirmation until 1936. On May 1 of that year Mr. G. M. Goodall found a single genuine tektite among the remains in a burial-cave on the small island in front of Port Lamon. (This cave will be discussed in a later paragraph.) The tektite was undoubtedly carried as a charm-stone by the Porcelain-Age folk who used the cave, but it may well have been originally found in a nearby part of Surigao Province.

(No Stone-Age or other pre-Porcelain-Age specimens are positively known from Surigao—although Neolithic adzes have been verbally reported as being seen there.)

Burial-cave explorations, and Porcelain-Age remains in general.—One of the earliest mentions of burial-caves in Surigao is in the 1910–1912 notes of John M. Garvan, who describes a

cave called "Tinago," located near the barrio or sitio of Taganáan, Placer municipality. He saw here broken wooden coffins, skeletal material in various states of preservation, and quantities of ceramic fragments, but made no attempt to collect any of them. He also mentions another cave, containing similar material, seen near Lake Mainit. (Doctor Guthe, to whom I gave Garvan's notes, visited these caves about 1923.)

Doctor Guthe's table indicates seven caves and one land-burial, or a total of eight sites explored in Surigao. He describes the first area ("Dinago," as he writes it) as follows: Three caves, located within a few yards of one another, on the small island of Dinago just north of Placer. First visited by Dean C. Worcester, and later by Doctor Guthe. Remains of coffins were seen. The following 85 specimens were collected: 11 green, 1 grey, and 2 brown ceramic fragments, plus 15 blue-and-white and 3 black-and-white; 1 piece of a dark jar, and 1 of unglazed stoneware; 12 fragments or pieces of native pottery; 5 objects of iron, 3 of copper or bronze, and 8 of shell; 5 beads; 7 skeletal specimens; and 11 miscellaneous.

Cadwallader Collection.—One of the best private collections that I have seen from the Surigao region was that formerly in the possession of the late B. W. Cadwallader (probably destroyed during the war). These specimens were collected from several different sources while he was engaged in lumbering and mining activities along the Surigao coast. Most of them were of Early or Middle Ming date, and the total ran up to nearly 200 pieces—many specimens and photographs being brought to me for identification. All specimens seen range between the 14th and 16th century, including a few celadons and a few Sawankhalok black-and-white pieces but mostly being Chinese blue-and-whites and polychromes. (Unfortunately no accurate list of sites was kept; and, although Mr. Cadwallader had promised to give me a copy of his notes on localities, and on other items he died before this was done.)

Beyer and Hester Collections.—Both my own and Mr. Hester's collections contain important Surigao material. These will be listed by lots or sites, without any particular arrangement—those in my General Philippine Collection coming first:

Gigaquit (Higákit) cave material.—This lot consists of 54 broken porcelain pieces and fragments, all collected from an old cave (said to have been partially uncovered during the great earthquake of 1923) in the Botong district of the barrio of Nuevo Campo Superior, Gigaquit municipality. They were collected by Justino Prañada, a Manila student formerly employed by Mr. Hester, in the latter part of 1937. He was told about the cave by a Mamanua Negrito, who said that he had found two whole ceramic pieces there after the earthquake; but when Prañada visited it only fragments remained. (The location is between 8 and 9 miles inland from Gigaquit, in an area formerly inhabited only by a mixture of Mamanuas and Manobos.)

The collection is important for the ceramic history of northeastern Mindanao, and consists of the following specimens: 2 pieces of a large 15th century brown-glazed dragon-jar; 2 pieces of a big black-and-white Sukhotai dish (14th century); 4 pieces of a very large blue-and-white "red-bottomed" dish (14th or 15th century); 5 fragments from two Early Ming polychrome pieces (probably 15th century); and 35 fragments of Chinese blue-and-white wares, chiefly of 15th century types including "hole-bottom" pieces, and good examples of "Mohammedan blue," and other objects). A few fragments may possibly be early 16th century.

Goodall Site at Port Lamon.—A small burial-cave, located on Bagasinan Island just in front of Port Lamon, was explored by G. M. Goodall on May 1, 1936, and a small but excellent collection sent in for my General Philippine Collection. The decayed and broken remains of a number of wooden coffins were not collected, as well as part of the skeletal material. Some of the best specimens were obtained through excavation of such soil as remained on the cave floor. The following material was sent in: 3 human skulls (one artificially flattened), 12 loose teeth, and a small boxful of human and animal bones and bone fragments; 2 large stone implements of unusual types (post-Neolithic); 5 pieces and fragments of iron weapons and tools; 21 pieces of bronze, brass, and similar metals (including one whole and two broken bracelets, 6 arm-ornaments, 3 discoidal breast-ornaments, 2 small bells, and 7 brass ornaments probably originally from the handles or scabbards of weapons); 2 gold ornaments (incised disks from the ends of ear-plugs); 1 whole and 2 fragmentary shell bracelets; 1 broken tortoise-shell bracelet; 1 perforated spiral shell ornament (perhaps used as an ear or neck pendant); 3 other ornamental objects of shell or bone (one unique); 150 small disk-beads or sequins made from mother-of-pearl; 47 glass, shell, and stone beads of various sizes, colors, and types; 1 whole clay-pipe bowl of an interesting and unusual type; and 1 broken tektite showing very deep grooving (probably used as a charm). Also four small boxes filled with porcelain and stoneware fragments and one with native pottery.

The ceramic fragments and the ornamental objects both indicate two distinct periods in the use of this cave for burial purposes; and the ceramic wares alone probably indicate three periods. The earliest period, represented by a relatively small proportion of the material, is 13th and 14th century; the second period, comprising the bulk of the collection, is late 14th and 15th centuries; while the third group is basically 16th century. On one side of the cave there was even a small group of typical 18th century fragments, indicating a brief period of later use, probably as a shrine (but possibly as a pirate hideout for 18th century loot, as local tradition indicates). At least three unique types are found among the ceramic wares;

and two of the metal ornaments are of designs not yet known from any other Philippine site.

C. M. Peters' finds at Placer.—In January, 1937, a single small limestone island, a little less than two kilometers north of Placer, was carefully explored by Mr. Peters who brought in only a few objects found in the recesses of the cave, but did not disturb the bulk of the material. There is only one cave on this island, about 18 to 20 meters deep and located only two meters above normal sea-level. The 21 specimens brought in are of unusual interest, and listed briefly as follows: 1 decorated clay-pipe bowl, of a Sumatran or Malaccan type; 6 large and small pieces of iron dagger-blades and knives; 2 large mother-of-pearl ornaments of an unusual spoon-shaped type; 10 fragments of decorated common pottery (all from either two or three pots), all of Kuta Tinggi or Sumatran types; 1 piece of a large Southeast-Asia blue-and-white dish; and 1 large section of a typical "red-bottomed" black-and-white bowl. Not a single Chinese specimen appears in this lot, all of the materials appearing to be of Southeast Asia origin. And all of the datable specimens appear to be of the 15th century or earlier.

If possible, this cave should be re-visited and a larger collection made. The only possible conclusion from Peters' material is that the cave was utilized chiefly by voyagers from Sumatra or the Malay Peninsula in the early Mohammedan period prior to the Spanish arrival.

Hester Collection Sites in Surigao Province.—Five different sites or site-areas are represented among the Hester specimens from Surigao Province, described briefly as follows:

(*1*) *Mahanub barrio find.*—A medium-large celadon bowl, of a pre-Ming Chinese type, was accidentally excavated on a hill farm in Mahanub barrio, Gigaquit municipality, in 1932; and was brought to Mr. Hester by Pedro Odtójan. In 1934 Pedro again brought a good Early Ming blue-and-white dish, found in an adjoining field, and still later two old jars from the barrio. (This would seem to be an attractive place for systematic work, as at least two periods are indicated and all finds so far made have been accidental.)

(*2*) *Tabon-tabon burial-cave.*—In July, 1934, Tomas and Regino Pareja brought to Mr. Hester eight good ceramic pieces (five celadon and three blue-and-white) which had been found in a newly opened burial niche or cave at Tabon-tabon, eastern Surigao. Two of the specimens are very interesting bulb-bowls or censers, each with three feet, a rare type in Philippine burial sites. (Common, however, in the graves of Fukien and other central and south China provinces.) All pieces of Yuan and Early Ming dates.

(*3*) *Tandag-Tago district finds.*—This area contains a number of good sites where accidental finds have been made, both in caves and rock-niches along the coast and in land-burials

on inland farms and kaiñgins. In May and June, 1935, Mr. Hester obtained a total of 12 good ceramic pieces from this district, through Tomas Pareja and Gregorio Plaza—of which four are celadons, six Chinese blue-and-white, one plain white, and one an overglaze polychrome. The full range is 13th to 15th century, some burials being likely Yuan, while a majority are Early Ming. (This whole district merits systematic exploration.)

(*4*) *San Isidro barrio find.*—A large dragon-jar of very early type (with two archaic five-toed dragons high up near the ears), with a dark-grey stoneware body, and with six rather unusual lion's-head ears, was excavated by a farmer named Florencio Calgo in one of his fields in San Isidro barrio, Gigaquit municipality. It was obtained by Mr. Hester in 1935.

This specimen is probably Yuan in date, and may be even earlier than the 14th century. It is unfortunate that no other pieces were found with it, to give a clue to contemporary dating.

(*5*) *Villafranca barrio find.*—In 1937 a farmer named Liborio Paña accidentally unearthed a large light olive-green Sawankhalok (or Sukhotai?) celadon dish, of an early type, in one of his fields in the sitio called Hagnajá'an, in Villafranca barrio, Gigaquit municipality. This specimen was brought in to Mr. Hester on October 3, 1937, by Justino Prañada, who had visited the place where it was found but failed to locate any other pieces. (The date of this dish is certainly 14th century or earlier, and it probably indicates a Yuan or Early Ming burial site in the vicinity.)

The above items, together with those cited on previous pages, indicate that many of the barrios of Gigaquit municipality are filled with ancient burials of several types, and that the whole area presents rich possibilities for future systematic work. (As with many similar areas, it is important that something be done about this before too much of the material is dispersed or destroyed through further accidental or unscientific excavations.)

Workers.—(As indicated under the preceding various items.) Also J. Montano, L. D. Lockwood, Montano A. Ortiz, various Jesuit missionaries, and others. (See Addendum for further Surigao data.)

57. *Davao Province:*

Early Palaeolithic remains.—Although no tektites or Pleistocene mammalian fossils have yet been reported, the oldest Philippine palaeoliths found south of Luzon have come from this province. In March, 1936, the late Capt. F. G. Roth found in a sandheap near the edge of Davao town two very interesting early palaeoliths—practically identical both in material and workmanship with the Trinil-type palaeoliths in the Rizal-Bulakan Collection, and with those found by G. H. R. von Koenigswald at Sañgiran village in Central Java. The sand and gravel pits from which the original material had come were located by

Captain Roth, but no competent geologist was able to examine them before the outbreak of the war.

Neolithic finds.—Two middle Neolithic stone adzes, found somewhere in Davao Province about 1902 by the late Governor Orville M. Wood, were presented to my collection in 1918 by his widow—and are both specimens of exceptional interest (although no record of the original site was found among Governor Wood's papers). Said to have been found near the Davao-Cotabato border-line.

One of the adzes is made of schist, and appears to have been an Early Neolithic specimen reworked into a Middle Neolithic semitanged type. The second adze is of a well-polished dense green stone (probably an altered rhyolite), and of a tanged semiridged type, distinctly ancestral to the Polynesian forms. (This tends to confirm the previously expressed view that the southern Philippines was the jumping-off place for at least one of the principal Polynesian migrations.)

Bronze- and Iron-Age remains.—(None yet definitely reported; but there are cultural survivals of both among some of the pagan Indonesian peoples of the Province. For cave remains found on Samal Island, see No. 58 below.) The two bronze images from the Caraga River Valley are almost certainly of the Porcelain Age (to be discussed below).

Porcelain-Age finds and collections.—Prior to the war two important porcelain collections existed in Davao—belonging to F. G. Roth and Ernest H. Oesch (all or mostly destroyed during the war, and both owners now deceased). The Roth Collections contained relatively few specimens from Davao Province—most of them having been acquired in Sulu, Cotabato, Cebu, and Luzon; but the Oesch Collection contained many specimens (mostly broken) from Davao sites, although the greater number of whole specimens were obtained from the Dulawan area of Cotabato Province (to be discussed under No. 60, below). The Oesch sites will be discussed hereafter.

The earliest finds from Davao Province were made by the Jesuit missionaries, and were sent to the museum of the old Ateneo de Manila. In addition to a number of skulls (several artificially deformed), Ming jars, and other ceramic specimens, from caves and burial-niches along the east coast, there were two famous bronze images found carefully guarded as sacred heirlooms (*pusaka*) among the pagan Mandayas of the upper Caraga River. One of these images, standing about 8 inches high and having many arms, seemed definitely Sivaite or Brahmanistic, while the other one appeared to belong to the Buddhistic pantheon. They were both undoubtedly brought to the Philippines in pre-Spanish and probably pre-Mohammedan times—while Madjapahit or the earlier Sri-Vishayan influence was still strong here. (Both the images and the other specimens mentioned were destroyed through the burning of the Ateneo Museum; but the images had been carefully sketched,

measured, and described by Dr. G. P. Rouffaer in 1912, and were again examined by myself and Dr. P. V. van Stein Callenfels in 1928–1929.)

Oesch sites and accidental finds.—From the following three Davao Province sites Oesch obtained a few whole pieces, many broken ones, and sherds: (1) A burial site on the beach, near the foot of Mt. Piapi, about 5 to 6 kilometers south of the mouth of the Padada River. (2) A burial site, said to have been used by the Kalagan Manobos in early Spanish times and before, located about 1 kilometer south of the mouth of the Padada River. (3) An ancient burial-ground, also said to have been used by the pagan Bilaans in early Spanish times, located about 10 kilometers up the Padada River, near the river bank. (No Bilaans have lived in this area within the memory of any one now living, and the site is deeply covered by river silt. Several whole pieces of both imported and native ceramic wares were found here by probing in the earth with a long wooden rod, and then digging them out. No systematic excavation was done.)

Most of Oesch's other Davao pieces came from accidental finds (including several good jars and celadon dishes, as well as a number of small blue-and-white pieces), of which no accurate record was kept. He gave me the following summary of his total collection on April 22, 1940: Total, about 400 pieces, of which over half were small Ming pieces (jarlets, bottles, saucers, covered round and square boxes, etc.); 12 to 15 Sung pieces, mostly celadon (two large and the remainder small); a few large and small jars; and a few Ming overglaze polychrome wares. The remainder are mostly Sawankhalok or other Southeast Asia wares (including a few doubtful or modern pieces).

The above totals include both Davao and Cotabato pieces. The destruction of this collection was a real loss to Philippine ceramic history.

Cultural survivals.—As Christian and Mohammedan influences scarcely touched the Davao region until the 19th century, much pre-Spanish culture survived unchanged until quite recent times. The letters and papers of the early Jesuit missionaries, and the cultural studies by Laura E. W. Benedict, John M. Garvan, Fay Cooper Cole, Mabel Cook Cole, the Metcalf sisters, and others, are full of details of interest for pre-Spanish studies. The early contacts of eastern Mindanao were chiefly with Celebes, Java, and other Indonesian islands, rather than with Borneo and Indo-China—and this manifests itself in the surviving cultures. (However, a strong Chinese influence, coming down from the north, is also apparent.)

Workers.—(As indicated under the preceding various items.) Also Mateo Gisbert, J. Montano, A. Henry Savage-Landor, Warren D. Smith, Benichi Setogawa, Levi E. Case, F. Maxey, and others.

58. *Samal Island (in Davao Gulf; part of Davao Province):*

(While no pre-Porcelain-Age remains have yet been reported from this island, or from the adjacent smaller ones, four interesting burial-caves were explored there in 1882 by Dr. Alexander Schadenberg, and some other important observations made. In 1924 Doctor Guthe re-visited one of these caves, at the southern end of the main island, but has published no data as to the result. The late Capt. F. G. Roth in August, 1931, found another small cave on the adjoining Malinpanao Island, and reported that a considerable quantity of porcelain fragments was seen there, and in certain rock-crevices and crannies on the same small island. Owing to the circumstances of his trip, he was able to bring back with him only one sample specimen—a half-whole Chinese blue-and-white bowl of the middle or late 16th century.

The whole area is worth systematic exploration, for historic and other reasons. The present population is curious, seeming to consist of an ancient mixture of bearded Europeans with a rather unique native stock. It seems probable that Dutch or other European vessels may have been wrecked there several centuries ago.

(The Schadenberg finds will be discussed more fully below; and additional Samal Island data will be found in the Addendum.)

Schadenberg's 1882 exploration.—In addition to 23 skulls (of which nine were artificially deformed cave-skulls) and other skeletal specimens, Doctor Schadenberg collected about 60 ceramic specimens, of which 16 pieces are illustrated. Eight of the latter appear to be native pottery vessels with incised decoration. Two large dragon-jars are of very early types (Yuan or Early Ming); while one probable celadon jarlet is of about the same date, or a little earlier. The remaining five illustrated specimens are of uncertain date, but probably all pre-Spanish. (Of the skulls, five are illustrated in four positions each, in very clear and detailed reproduction.)

In addition to human and animal bones, and ceramic specimens, Schadenberg found iron weapons and tools (considerably disintegrated), of which spearheads, arrowpoints, axes, and various shapes of small knives are mentioned. Also both bronze and shell bracelets, in several of the caves.

Workers.—(As indicated in the preceding items.) Also A. B. Meyer, A. Henry Savage-Landor, Frederick H. Sawyer, and the Jesuit Fathers.

59. *Sarangani and Balut Islands (part of Davao Province):*

(No pre-Porcelain-Age remains found; but these islands are important historically, and were visited by several early voyagers. In 1543 the Villalobos expedition remained here for six months, planting and harvesting a crop of maize to replenish their food supply.)

Porcelain-Age remains and survivals.—In August, 1924, I personally examined an interesting old burial-site on the northwestern side of Balut Island, located near the western projecting point of the island. In company with William Crosby, of the Bureau of Forestry, I examined an area located at the edge of a secondary forest growth and a grass-covered hillside, facing the sea, about half a kilometer inland and some 50 to 60 meters above sea-level—the whole region having long been completely uninhabited. Here we found a curious burial-mound, one side of which had been partly broken down by erosion. Having no excavating tools with us at the time, we were forced to be content with what we could dig out with our hands and a couple of sharpened sticks. In this manner we obtained three nearly whole ceramic pieces, the accompanying bones being so completely disintegrated that we did not attempt to save them. The first piece was a thick-glazed light green celadon, and the second an early blue-and-white ware, both apparently of the 15th or early 16th century. The third piece, however, although probably of contemporary date, was of still greater interest, being a native pot of grey-black bodyware with the outside half-covered with an incised or impressed design.

The only other object recovered from this mound was an iron dagger-blade or small spearhead, so badly weathered that it fell apart in laminated rust-flakes when we tried to remove it. About half of the mound was left unexcavated, as we were called back to the ship. Two or three other similar mounds, apparently undisturbed, were seen in the vicinity—and this area is certainly worth systematic excavation when opportunity offers. The burial mounds are low oblongs, quite reminiscent of certain Indian burials, that I knew as a boy in the Mississippi River Valley in eastern Iowa, but rarely found in other parts of the Philippines.

Workers.—(As above.) For historical data, see Blair & Robertson, F. D. Burdett, and others.

60. *Cotabato Province:*

(This province is the largest in the Philippines, in point of actual land area; and many accidental archaeological finds have been made in widely separated parts of it. No tektites or pre-Neolithic remains have turned up; but Neolithic finds have been made in at least two areas and Porcelain-Age sites are numerous, while Bronze- and Iron-Age survivals indicate the strong probability that sites of those periods would soon be found if systematic work were carried out. Historically and protohistorically, Moro records go back into late pre-Spanish times, while still earlier relations with the old empires of Madjapahit and Sri Vishaya are known from partial records, tradition, and cultural survivals. Four pagan, two Mohammedan, and several Christian groups are represented among the present population; and the Province is a fertile field for future systematic work, both archaeological and ethnographic.)

Neolithic finds.—In 1909 Emerson B. Christie obtained five Neolithic stone adzes and chisels while making an ethnological collection among the pagan Tirurais of west-central Cotabato Province. Three of them, which remained in the National Museum, were lost during the war; but two of them had been transferred to my General Philippine Collection, and are still on exhibit at the Institute. My present recollection is that two or three were Early Neolithic adzes reworked in Middle or Late Neolithic times; while the other two were of plain-backed Late Neolithic type. One specimen of each type still survives.

One of the Christie specimens (still at the Institute) is deeply patinated, indicating recent excavation; but the other four were more or less polished, and had been found by him in the hands of native priests or magicians who regarded them as potent charms. He states that they were called "dila latik," or "lightning tongues."

While the late Governor James R. Fugate was living at Upi, also in the edge of the Tirurai country, in 1938, he sent to me and to F. G. Roth several Neolithic specimens found in the Awang district. The two that I still have are a rather rough Late Neolithic adze (from Upi), and a remarkable whole specimen of an extra-large horned barkcloth beater. The latter specimen was found at Nuro by Fermin Padua, while he was digging postholes for his new house. It was buried about two feet below the surface, in a reddish soil. The specimen is thickly patinated, and appears to be of Middle or early Late Neolithic type. It is quite similar in form (but larger and thinner) to the only other known Mindanao barkcloth beater—the famous "Ateneo" specimen from Misamis Province (see No. 62).

Porcelain-Age finds and explored sites.—In 1920 Edward H. Taylor found a small burial site in the forest, between 7 and 8 kilometers back of the Celebes Plantation Company's office on the Cotabato southwest coast. The site lies in the Tagabili country, where the people fear old burial places and are careful not to disturb them in any way. Taylor found numerous broken ceramic pieces of interesting pre-Spanish types, disintegrated iron weapons and tools, ornamental objects, and skeletal material, washing out of partly broken down mound-burials—quite similar to those found by Crosby and myself on Balut Island (see No. 59 above). Owing to the nature of his trip, Taylor removed only one nearly whole skull and a few ceramic fragments, and left the site otherwise undisturbed.

Doctor Guthe did not work in Cotabato Province, and lists only two indefinite finds there; and the Hester Collection lacks any old Cotabato specimens. Aside from my own fairly large collection, I know of only three other lots of Cotabato material—the Roth and Oesch collections in Davao, and the Rafael Roces Collection in Manila, all of which were destroyed during the war. The Roces lot will be discussed hereafter, under Bu-

kidnon Province, as most of it probably came from there or just over the Cotabato borderline. The Roth specimens, like many in my own General Philippine Collection, were from accidental finds without definite site records. More than half of the Oesch specimens listed on p. 308 above (particularly the blue-and-whites and overglaze polychromes) came from the Dulawan area of Cotabato. They were mostly obtained for him by a Moro collector, and came chiefly from accidental finds without specific records, some pieces having already been put to use in Moro homes. The great number of pieces found, however, indicates that the Dulawan area is rich in old burial sites and heirlooms, and would be a profitable place for systematic work.

The Saceda collecting trip of 1933.—The best Cotabato specimens in my General Philippine Collection were the result of a special trip made to the northern and central parts of the Province by my Visayan Islands collector, Crisogono Saceda, in 1933. While visiting a Cebuano friend at Pagaluñgan Agricultural Colony No. 5 (near Fort Pikit) he heard of a piece of porcelain being dug up in one of the fields. With the aid of his friend and a few other Cebuano settlers, he conducted a fairly extensive excavation there, securing altogether 19 whole ceramic pieces and fragments of several others, from a single large field. No true midden site was located, as the surrounding fields were not properly searched; but I have no doubt that one could have been located somewhere in the vicinity by a trained observer.

The date range of the 19 whole pieces found at Pagaluñgan covers less than a century—late 15th to middle 16th—and they correspond very closely to what we call the "Inálsan type" in Rizal Province. The following specimens were brought in: 7 Chinese blue-and-white of Middle Ming types, 6 Chinese Middle Ming monochromes, 3 Sawankhalok black-and-white covered bowls or round boxes, 1 special white dish of Fukien "Tehwa" ware, and 2 unusual small dishes of South China or Indo-China wares. Two of the Sawankhalok covered bowls are the largest yet found in the Philippines; and the Fukien dish was the first unbroken specimen of this type found, although fragments are known from several sites and the National Museum formerly had a similar piece from an unknown Visayan Islands site (broken during the war). No beads, bracelets, or other ornaments were found; and the iron tools and weapons were so completely disintegrated in transit that they could not be reconstructed.

The Liguásan finds.—While on this same trip, Saceda also obtained ten other good ceramic pieces and four metal specimens from three sites in the Liguásan area of north-central Cotabato. The first and oldest lot consists of five pure Sung ceramic pieces (four celadons and one small four-eared jar cov-

ered with incised floral designs), of the 12th century or earlier, all probably excavated from one or two adjoining graves. This is the first pure Sung burial-site yet reported from Cotabato.

The second Liguásan lot consists of two perfect Chinese blue-and-white bowls of medium size, one of which originally had on the outside of the bowl an added overglaze design in the usual Early and Middle Ming three colors (tomato-red, yellow, and turquoise-green). Both pieces are of good Ching-techen porcelain, and have factory marks or "hall-marks" on the base, while the inside blue-and-white designs are mostly of boys at play, or other human figures. These bowls are both of types illustrated in R. L. Hobson's "Wares of the Ming Dynasty" as being Early Ming of the first half or middle of the 15th century; but our Philippine experience, especially in the Rizal Province and Manila sites, leads us to believe that they are not earlier than the late 15th or early 16th century. In fact, these two pieces would be placed by me as of the same general date as the material from the Pagaluñgan Site (discussed above), and as probably coming from a contemporary grave.

The third and last Liguásan lot consists of three ceramic and four metal specimens obtained from a Moro who claimed to have excavated them a year or two previously in one of his fields. The ceramic pieces are all very interesting, and seem to probably represent an early 14th century site contemporary with the late Yuan period—although none of the specimens are regular Chinese wares. One is a tall Sawankhalok celadon jarlet, with a rather opaque bluish-green glaze, an early type of pre-Satchanalai manufacture. The second piece is a bowl of the special "red-bottomed" type. While the third and last ceramic specimen is a finely crackled saucer-dish, with a thin greenish-brown glaze—probably of 13th or 14th century Thanh-hoa or South China manufacture. The four metal specimens are said to have been found in the same field with the ceramics. One is a bronze cup, partly filled with lime; while the other three are of iron (a medium-large spear-head, and two perforated balls that seem to have been either spindle or drill weights.) This area should be further investigated in the future.

Historical records and survivals.—The famous collection of original Moro manuscripts made by the late Dr. N. M. Saleeby is wholly gone, part having been burned with his house in 1909, and the remainder destroyed with the Bureau of Science during the war. My own facsimile copies of some of the more important Saleeby MSS. were also destroyed at 212 Nebraska during the war. Of those originals still preserved by old families, in Cotabato Province itself, the war saw the end of many but it is hoped that a considerable number still survive.

One of the best collections was in the hands of Representative Gumbay Piang, at the beginning of the war.

Typewritten copies of many ancient Moro records still exist in my 10-volume "Moro Ethnographic Series"; but more should be diligently sought while originals or copies still survive. Special attention should be paid to the records both of the old Sultanate of Magindanao and to those of the up-river "Radja of Buwayan"—political states which go well back into pre-Spanish times.

Workers.—(As indicated under the preceding various items.) Also Thomas Forrest, Jacinto Juanmartí, José Tenorio (a) Sigayan, Guillermo Bennásar, F. H. Sawyer, A. Henry Savage-Landor, E. B. Christie, J. Montano, Ralph S. Porter, F. C. Cole, Mabel C. Cole, Wm. C. Bryant, Charles E. Livingstone, Datu Piang, Datu Sinsuat, Frank J. Dunleavy, Martin Ortuoste, William E. W. McKinley, H. O. Beyer, Frank W. Carpenter, Capt. I. B. Edwards, and others.

62. *Bukidnon Province:*

(No tektites or pre-Porcelain-Age archaeological finds definitely reported, although it is possible that the interesting barkcloth beater discussed under Misamis Province may have actually been found in what is now Bukidnon territory. The early Jesuit Fathers referred to the Bukidnon people as "Monteses" and had dealings with them from a very early period. Search should be made in the writings of Colin, Combés, and others, for data on early finds, customs, and pre-Spanish survivals.)

Porcelain-Age finds and survivals.—Two inland caves were explored by Dr. Carl Guthe about 1923, but he gives no data as to the results. They may be the same caves explored at a still earlier date by Dean C. Worcester—of which a number of interesting photographs formerly existed in the Bureau of Science Collection. The photographs, of which I have still some prints, clearly indicate good quality broken ceramic wares of the 15th and 16th centuries only. The location of these caves is somewhere near Maluko, not far from the Misamis-Bukidnon road.

In May, 1933, E. D. Hester obtained four large stoneware jars from Bukidnons living along the roadway from Maluko to Malaybalay. Two proved to be Spanish-period pieces of the 18th century; but the other two are interesting middle or Late Ming pieces of the 16th or beginning 17th centuries. They are probably true heirloom pieces preserved among the Bukidnons as ceremonial wine-jars, in the same manner as the numerous old jars of the Mountain Province peoples.

Roces Ranch finds.—Some of the finest ceramic pieces obtained from the entire Central Mindanao area have been found on or near the Roces cattle ranch, along the Bukidnon-Cotabato borderline. A good many of the pieces were accidentally excavated by workmen on the ranch, or by local settlers in

the vicinity, and they were collected for Rafael Roces and some of his friends by the ranch foreman. I examined most of these pieces in Manila in 1932, for Mr. Roces, who then had the intention of presenting two or three of the best specimens to Governor-General Theodore Roosevelt, who was about to leave the Philippines. The pieces retained by Mr. Roces were all destroyed during the war, although some few specimens in the hands of other persons may have survived.

My examination indicated that the material from this area is all Late Yuan and very Early Ming, no piece being earlier than the 14th century, and none later than the middle 15th. One very fine large blue-and-white dish (14 inches wide) was of the special "red-bottomed" type; while another (nearly 16 inches wide) was covered with a strangely unique design under a thick greenish and bubbly glaze. I believe that both of these special types are of the 14th century. (The number and character of the pieces found indicate that this whole area should be systematically explored in the future. It lies in the upper Pulangi River Valley, about 50 kilometers north of Fort Pikit, Cotabato Province, from which area very similar material has already been described.)

Workers.—(As indicated in the preceding items.) Also Manuel Fortich, W. F. Hale, W. C. Bryant, John M. Garvan, Ricardo C. Galang, José Sanvictores, Mabel Cook Cole, and others.

62. *Misamis Province (old boundaries): (now Oriental and Occidental Misamis Provinces, excluding Camiguin Island):*

(Eastern Misamis, or Misamis proper, is a narrow coastal strip lying between the sea and the northern edge of the Bukidnon plateau. In our present study, western Misamis will be considered as covering only the narrow coastal strip lying to the west of Iligan and Panguil Bays. For political reasons, large sections of the thinly inhabited mountain hinterland, lying back of the coastal strips, have recently been transferred from Bukidnon and Zamboanga to Oriental and Occidental Misamis; but ethnographically and archaeologically they still belong to the original provinces, and will be so considered in the present paper. The Dapitan-Dipolog district will also be considered under Zamboanga Province, for historical reasons; although, having long been populated by Visayans, their transfer to Western Misamis is more justifiable.)

Stone-Age remains.—No tektites or certain pre-Neolithic finds have been recorded, the flint microliths found by Fr. Ewing being probably Neolithic in point of actual manufacture, although resembling Mesolithic forms.

The oldest Neolithic find was made in eastern Misamis, and dates back to April 14, 1889, when Procopio Alcantara presented to the museum of the old Ateneo de Manila a remarkably perfect specimen of a Middle or Late Neolithic horned bark-cloth beater, which he stated to have been found in use as

an idol or sacred image among the pagan Bukidnons of the Tagoloan area. He stated further that they called it *Tigbas*, and believed that it had fallen from the sky.

This instrument is a combination beater and printer, and I had it carefully photographed in four positions and measured, in the early 1920s. This was fortunate, as the specimen was later lost in the Ateneo fire. The material was a porphyrytic andesite.

At least two other finds of Neolithic adzes have been reported by University students coming from eastern Misamis, but I have not been able to examine either specimen.

Metal-Age survivals.—The presence of certain curious beads and other ornaments among the pagan Subanuns in the mountains of western Misamis was reported to me prior to 1918 by Emeterio Roa and other University students, and later a few specimens were brought to Manila. Unfortunately, all of this material was destroyed during the war, but if my recollection is correct there were several important Iron-Age types among the lot. The Subanuns believed that they had fallen from the sky—which usually means that they were found washing out from ancient burial places on traditionally uninhabited hill-sides.

Porcelain-Age finds and survivals.—Doctor Guthe did no work in Misamis proper, his only important find having been on Camiguin Island. The Hester Collection also has no pieces from Misamis Province.

My General Philippine Collection has several fairly good pieces from western Misamis, but all except one important find are lacking in site data. The one known site is in a small barrio just back of Jimenez, from which I have one good 15th century blue-and-white jar. This area must contain a number of burials, as more than 20 ceramic pieces are said to have been excavated there (a majority of which were 15th and 16th century blue-and whites). Most of the specimens went into the hands of private collectors in either Cebu or Zamboanga; and it is likely that the greater part of them were destroyed during the war. The original finds were made in 1932.

Shortly before the war I received some notes from my former student and collector, Pedro Abella, relating to an interesting new find of some 15 or more pre-Spanish ceramic pieces and other specimens made near the southern border of Misamis Occidental. The letter contained details of the site, and other data, but it has either been lost or mislaid during the war period and cannot now be located. (If found, the data will be included in the Appendix to the present paper.)

Workers.—(As indicated in the preceding items.) Also Ramon J. Capistrano, José V. Neri, Fr. J. Franklin Ewing, Fr. Jaime Neri, former Senators Artadi and Ozamis, and Manuel Fortich.

63. *Lanao Province:*

(No pre-Porcelain-Age remains actually found, but Bronze- and Iron-Age survivals numerous, indicating strong probability that sites could be located if systematically searched for. Porcelain-Age remains numerous, but most finds so far purely accidental. As with Magindanao, historical records of the Lake Lanao region go back well into pre-Spanish times. The area is referred to in 14th century records as *Malano,* and it was one of the strong seats of Madjapahit culture. The region has highly developed metal-working art that shows much evidence of contact with Java, Sumatra, and India; while certain other culture features indicate ancient Chinese and Japanese influences. The defensive armor of the Lanao warrior shows a notable mixture of Japanese influence with 16th century Spanish; and other interesting similar items might be noted.)

Porcelain-Age finds and heirloom survivals.—Doctor Guthe did no work in Lanao; but the Hester Collection, the Babcock and Hugo Miller Collections, and my own General Philippine Collection all contain a considerable number of Lanao specimens—both from accidental excavations, and in the way of heirloom specimens. Those that I have seen are mostly 15th and 16th century Chinese blue-and-whites, with a few overglazed polychromes, and a fair number of the later Sawankhalok wares from the Satchanalai kilns. In addition to ceramic specimens, there are a number of gold, silver, and bronze buckles, pendants, rings, and other ornamental objects, some of which may be pre-Spanish; particularly in my own collection (but many were stolen during the war).

The only midden site yet reported is one found in June, 1928, by Ifor B. Powell, just back of the cotta of the Sultan of Mulundu. Most of the midden fragments brought in are early Spanish period, but from 10 to 15 per cent are pre-Spanish and seem to indicate an old settlement in this vicinity.

One interesting feature of the Lanao Middle Ming porcelains is the presence of an unusually large number of pieces with "fish-scale" or "dragon-scale" designs in a rich dark violet-blue, apparently all of the Chia Ching period. The correspondence with the Inalsan Site in Rizal Province is quite notable.

Historical records of pre-Spanish date.—The genealogies and other documents in Dr. N. M. Saleeby's "Moro Studies," and certain Spanish documents reproduced in my "Moro Ethnographic Series" or cited by Colin or Combes (Pastells and Retana editions, respectively), contain important data on early Lanao history. (Additional material of this sort should be sought in Lanao, if any is still obtainable.)

Workers.—(As indicated in the preceding items.) Also A. Henry Savage-Landor, F. H. Sawyer, Dean C. Worcester, Charles Winslow Elliott, H. O. Beyer, Frank C. Laubach, Hila-

rio Moncado, G. V. Sumner, Jr., H. Hossfeld, Superintendent Kuder, and others.

64. *Zamboanga Peninsula and Province (excluding Basilan Island):*

Stone-Age remains.—No tektites or other pre-Neolithic finds, except a considerable number of microliths located by Frs. J. Franklin Ewing and Jaime Neri, and these seem most likely to be of Neolithic manufacture although possibly Mesolithic. All of this material was destroyed during the war, in 1942, except one flint microlith sent me as a sample by Fr. Ewing in 1941. The latter wrote me that obsidian microliths had been found—but if the sample sent was representative the material was actually translucent flint. (So far, no obsidian has been found south of Luzon, except a single specimen from Panay which may have been transported.)

While studying the Subanuns in 1909–1910, Emerson B. Christie found several Late Neolithic adzes and chisels in use as charms by the medicine-men, chiefly in the Sindañgan Bay area. One of these specimens is still in the Institute Collection, while two others were destroyed at the Bureau of Science during the war—but I still have photographs of all of them. One has been damaged by subsequent use as a sharpening stone, but all are clearly plain-backed forms of well-known early Late Neolithic types.

Bronze- and Iron-Age survivals.—No actual finds of Bronze- or Iron-Age sites have been reported, but many important survivals of these cultures exist among both the Moros and the pagan Subanuns— and it is probable that sites could be found by systematic search. (Fr. Ewing found what he considered to be a possible Iron-Age site somewhere back of Sindañgan Bay; but as both specimens and notes were lost during the war, and as I saw none of the material, nothing further can be included here.)

Porcelain-Age finds and survivals, in general.—Many finds have been made in the Zamboanga Peninsula during the past half century, some by trained explorers and others accidentally. The more extensive finds have been made in four principal areas, which will later be discussed separately: (*a*) the Dapitan-Dipolog area at the northern corner of the Peninsula; (*b*) the narrow part of the Peninsula, a little to the north of Zamboanga City; (*c*) the Sindañgan Bay region; and (*d*) the Margosatubig-Malangas region.

In addition to the above four areas, accidental finds have been made in a number of places, but concerning most of them we have no adequate records. Miners working placer deposits have found interesting gold beads, of the same types as the 12th century finds at Paracale and in the Shauger Site in Samar, in at least two localities. The site notes and one photograph were lost during the war, but the gold beads were mostly taken to the United States by two of the American miners employed on the work.

Dr. Carl Guthe lists five caves, five burial-grounds, six individual land-burials or graves, and eight miscellaneous or doubtful sites, explored under his direction in Zamboanga and Basilan combined, but gives no further data on the Zamboanga finds. (The full records are doubtless in the Michigan Museum.) His Basilan finds will be discussed under No. 65 below.

Frederick L. Worcester, of Zamboanga, prior to the war possessed a very fine collection of celadons and other pre-Spanish ceramic pieces, a number of which were found in the Zamboanga Peninsula—although a majority came from Sulu, Cebu, and elsewhere. Most of the collection was destroyed or looted during the war, and no records remain of the original sites, where known. His finds on Basilan will be discussed later.

The Hester Collection contains no specimens from either Zamboanga or Basilan, and my General Philippine Collection contains only a few, without significant data.

(*a*) *Finds in the Dapitan-Dipolog area.*—The first to explore the burial-caves and land-burials of the Dapitan area were Fr. Francisco Sanchez and Dr. José Rizal, during the latter's exile there, in 1894. Among other objects, some interesting gold jewelry of the 14th or 15th century (wrongly interpreted as early Christian) was excavated on a hill reputed to be haunted by spirits of the ancient inhabitants. One of the rings (illustrated by Craig) is almost identical with the San Felipe Neri and Ormoc specimens previously described.

However, the first systematic examination of this area was carried out in 1906 (February-April) by Emerson B. Christie, for the old Division of Ethnology and Philippine Museum. Altogether, he examined some 18 different caves and burial-places, at several localities in the Dapitan and Ilaya districts; and brought together the most extensive archaeological collection ever made in the Philippines prior to 1922—except for the work of Marche in Marinduque in 1881. In 1922 I gave Dr. Carl Guthe a copy of Christie's detailed report, and during the following two years he re-visited a number of the principal caves, etc., and removed a considerable part of the material that Christie had not taken. Some of the sites were again visited in 1940–1941 by Frs. Ewing and Neri, but little was left to remove.

Christie's collections were all deposited in the old Philippine Museum, and contained a great variety of material including a number of very interesting gold ornaments. Some of the large black burial-jars and fragments are still left in the National Museum, but the greater part of the collection (including all of the ornaments and smaller specimens) was destroyed or lost during the war. No photographs exist, except of some of the jars. However, I examined all of it, at various times in the past, and can say definitely that at least 95 per cent of the material was of the 14th and 15th centuries, and the earliest specimens

found were of Yuan date. Some good Sawankhalok and Southeast Asia ceramic pieces existed, although at least 80 per cent of the ceramic material was of Chinese origin. No finer black burial-jars have since been obtained from any other locality. A considerable number of metal objects existed—mostly iron weapons and tools, but including also objects of copper, bronze, brass, lead, and other material, as well as gold and silver ornaments. Only a few beads were found but some are of interesting types.

The following specific sites are described in Christie's report:

(1) A small cave on the lower slopes of the hill which rises just to the north of Dapitan; contained only bones, much disintegrated.

(2) A cave on the lower slopes of the hill called Limanon, about 6 miles from No. 1; containing a great quantity of ceramic fragments, jars, etc., as well as some skeletal material and many filed teeth.

(3) A small cave adjoining No. 2, and an excavated talus slope both gave interesting results; additional ceramic material, broken shell bracelets, and metal objects (including two arrowheads) were found.

(4) A large midden site on top of Limanon hill; much ceramic material found (both imported porcelains and native pottery), resembling that from the caves.

(5) A burial-cave in the sheer face of the cliff facing toward Dapitan, on Limanon hill. (Christie failed to get into it, but Doctor Guthe successfully explored it in 1923–1924.)

(6) A small burial-cave about 20 minutes walk from the barrio of Ilaya; bones, ceramic fragments, and one cylindrical gold bead were found.

(7) A rock-shelter, a few meters away from No. 6, also contained bones, pottery, etc. The hill where these two sites are is called "Tapalun" by the natives.

(8) A large hill called "Cataluñgan", located about 45 minutes canoe-trip down the river from Ilaya, and 1½ to 2 hours climb inland by footpath; contains several empty caves near the foot of the hill, and a large burial-cave several meters above the ground in the face of a steep cliff. This cave contained four or five large burial jars with one or more pieces broken out of the sides, and one of them was half filled with skeletal material. Many loose bones were scattered about the floor of the cave. A great number of stone, shell, and tortoise-shell bracelets were found; also a small round gold ornament and two gold caps for ear-plugs. Pottery fragments were very scarce, and no iron tools or weapons were seen. There were at least 50 to 60 burials in this cave. Thirty of the best skulls were collected and shipped to Manila, with the most perfect

burial-jar and a considerable number of the bracelets and other objects. The cave was very dry.

(9) An old burial-site at a place called "Marinhit," in the Lubungan area, reached from Dapitan by banca up the Dicayo River; one burial-cave at a place called "Tambay" on a creek of the same name; and three caves, all in one hill, up the Siraan River which flows into the Dicayo.

In one of the Siraan caves a round gold ornament was found; also a considerable number of jars and plates, a few of the latter being whole. Also many shell bracelets, etc. Only a few specimens from the Siraan caves were taken for shipment to Manila.

(10) On the banks of the river above Duhinot, and of a small tributary, no less than five old burial places were found—four being caves and one a rock-shelter or shelf in the face of a cliff. A number of large carnelian and agate beads, and two gold ornaments, were found in one of these caves; and there was a great quantity of ceramic fragments in all of them. One jar was found still containing human remains and beads inside. It was ornamented with a dragon design.

(11) At Manukan, just beyond Punta Blanca, and within sound of the waves, a medium-sized cave was found containing a layer of ceramic fragments more than a foot deep, as well as many bones, etc. Little or nothing was taken from this cave, as the contents seemed similar to what had been already collected.

(12) Several burial-caves were heard of, some distance up the Disacan, or Lisacan, River; but Christie failed to find them, as a recent smallpox epidemic in the vicinity had frightened the people and no guide would accompany him.

(13) A cave on the Tangyan branch of the Disacan River was visited, but found to be empty.

(14) Other caves were heard of in the Langatian subdistrict, but time was not available to visit any of them.

Altogether, seven good gold ornaments were obtained on this trip. They included cylindrical beads, ring-money, incised earplug covers, and other objects. It is unfortunate that no proper photographs or drawings were made of them before they were lost—but they were all of types since found in other Philippine burial-sites, although the detail of the designs may have been different. (Jesuit Fathers Obach and Jose España assisted Christie with information.)

(*b*) *The area north of Zamboanga City.*—The first good-sized collection from southern Zamboanga was secured for the old Philippine Museum through the interest of Governor Frank W. Carpenter and the late Juan Posadas, Jr., in 1919.

The site was an apparently undisturbed burial-cave, first discovered by accident in the latter part of May, 1919, in the sitio of Manga, Bolong barrio, about 7 kilometers from the seacoast. The cave was in a limestone hill, covered with trees and bushes, and the opening was about 30 feet above the surrounding flat land. The cave is very large, being nearly 200 feet deep, with two main chambers and a thick layer of clay soil in the bottom; part of the specimens found being excavated from this clay floor.

The original discovery was made by Pedro and Felipe Tarroza, and a certain Rafael de Leon—Pedro's house being only about 300 meters from the site. According to Mr. Posadas' investigation, the following objects were found in the cave: 3 glazed burial-jars, 6 small plates and saucers, 1 bowl, 1 porcelain tea-pot or water-vessel, 1 lot of beads (originally apparently all on one string), 1 piece of flat gold wire about ½ inch wide and a foot long, and a number of broken pieces of porcelain and pottery, and several whole and broken shell bracelets. Later investigation and partial excavation by Mr. Posadas brought to light 3 more large jars, 1 small jar, 6 pieces of broken jars, 1 white stone artifact, and 2 pieces of copper or bronze. (Posadas' work was on July 24, 1919.)

None of the beads, bracelets, or gold wire, and four of the original small plates or saucers, could be located by Mr. Posadas, as they had already been disposed of by the finders before his arrival. All of the other objects were shipped to the Philippine Museum at Manila, through Governor Carpenter. The original cave and two others that were found in Bolong barrio were ordered sealed by Mr. Posadas, to await further investigation by a competent man from Manila, but, so far as I am aware, the investigation was never carried out.

Most of these specimens were destroyed at the Bureau of Science during the war, but I still have photographs and descriptions of all the important ones. The full range of the site is from the late 13th to the early 15th century. Most of the jars and porcelain pieces are very Early Ming, but at least three of the jars are of a curious type with incised designs that seems to be definitely of Indo-China make (northern Annam?) in the 13the or 14th century. The fine celadon bowl and the two small blue-and-white plates (all found in perfect condition) are probably of the 14th century, or beginning 15th at the latest; and this seems a fair estimate for most of the other objects found in the site.

The two bronze specimens are undoubtedly much corroded pieces of a large gong, and may have been used as a cover for one of the burial-jars, in the same fashion as found in several Basilan Island sites (see No. 65).

(*c*) *The Sindañgan Bay region.*—During 1940–1941 Frs. J. Franklin Ewing and Jaime Neri explored a very interesting group of burial-caves in the region around Sindañgan Bay.

Collections were made from four of the caves, and shipped to Manila, but all were destroyed during the war, including, most unfortunately, all site records and field-labels as well. Fr. Ewing's own notes were also lost in Mindanao, as well as the additional collections which he had stored there (chiefly in Dipolog and Cagayan de Misamis). I had examined all of the collections sent to Manila, however; but in the absence of the field-notes cannot now give the location of the caves. My notes on the first three caves were lost, and can only be restored partially from memory. The fourth cave, in a sitio called "Baluk," was explored at a later date; and, fortunately, I kept an extra copy of the notes at the Institute, and thus will be able to describe it in some detail, below.

As to the first three caves, I can only say that the remains consisted chiefly of a large and excellent collection of skeletal material associated with numerous large fragments of black and dark-brown burial-jars, very similar to those obtained by Christie from the Dapitan and Ilaya caves. Some porcelain pieces and fragments, ranging from the 14th to the 16th century and chiefly of Chinese manufacture, were also found, in addition to a number of much corroded iron weapons and tools, and a few miscellaneous objects. No gold or other metal ornaments, and only a few beads and broken shell ornaments, were found in the first three caves.

The Baluk Site.—Although my notes do not contain the exact location of this important fourth cave, it is known to lie several kilometers inland from Sindangan Bay. In addition to a considerable collection of skeletal material, the following other objects were obtained: 3 flat gold disks, with incised designs, being caps from the ends of horn or hardwood earplugs; 4 carnelian and 11 glass or paste beads of various sizes and colors (nine of which were found with gold disks); 3 whole and 1 half-whole bronze or copper bracelets; 14 whole shell bracelets (of four standard types and three sizes); 1 package of fragments of iron weapons and tools (representing at least six different specimens of different shapes); 19 packages or pieces of black and brown glazed jar fragments (each from a different jar), all of Middle Ming types; 1 nearly whole Sawankhalok black-and-white round box, of a probable late 15th or early 16th century type; and 15 pieces and large fragments of Chinese porcelain wares, all of late 15th or early 16th century types.

The obvious general conclusion from the above data is that the Baluk cave was chiefly used for burial purposes in the late 15th and early 16th centuries.

(*d*) *The Malangas-Margosatubig region.* In 1919 Mr. A. V. H. Hartendorp collected a number of specimens for me around the Margosatubig area, and in 1921 I personally collected midden fragments from three different sites near the Malangas coal mines, and near where the small mine railroad comes down to the landing-pier on the coast. All of these speci-

mens, including the field-labels and notes, were destroyed at 217 Nebraska during the war. My present recollection is that practically all of the ceramic specimens were of Middle and Late Ming types; and I am quite certain that there were no pre-Ming specimens of any sort.

Workers.—(As indicated under the preceding various items.) Also Carl M. Moore, J. Scott McCormick, Henry Neibert, Datu Dakula, F. P. Williamson, C. J. T. Clarke, N. M. Saleeby, Awkasa Sampang, J. H. Hackett, and others.

65. *Basilan Island (part of Zamboanga Province):*

Stone-Age remains.—Doctor Guthe's collection contained one plain-backed early Late Neolithic adze, about 3 inches long and 1¾ inches wide, made of a dark-grey slatelike material, found on Basilan. I have an accurate sketch of this specimen, which he sent to me in November, 1924.

No other Stone-Age material from this Island has yet been reported.

Possible Bronze- and Iron-Age survivals.—No actual finds of identifiable Metal-Age artifacts have been made, but interesting survivals among the Yakan Moros indicated that systematic search might very likely turn up true Bronze- or Iron-Age sites. Certain old beads and other ornamental objects especially are of types that seem to go back at least to the Middle or Late Iron Age.

Porcelain-Age sites and accidental finds.—The oldest known Basilan site is that discovered through accidental excavation, in 1920, while a canal was being dug on the northwest side of the Island. The chief find was an extra-large glazed burial-jar, of an unusual type, standing about a meter in height and ⅔ meter in width. It was excavated from a depth of over a meter under the ground, and when found was covered by a large broken bronze gong or drum-head of a much-corroded and very early type. Several small ceramic pieces, some beads and other jewelry, and a number of fragments of much-disintegrated bones were found inside the jar—but were all carried away by the workmen. The jar and gong were examined by me in Jolo, and were later acquired for the National Museum. The jar is a probable South China production, not later than the first half of the Ming period and could be older. The gong is probably a Sulu production of a still earlier date.

Doctor Guthe's finds.—While Doctor Guthe explored several Basilan sites, he has given us a description of only one. This is described as a large burial-ground on the small island just off the southeastern point of Basilan. It was first visited by Dean C. Worcester, and later twice explored by Doctor Guthe. Most of the specimens were obtained from the inhabitants of a village which now occupies the site—the specimens having been turned up in the course of house-building, gardening, and farming. The following material was derived from this site: 29 green, 8 grey, and 6 white ceramic pieces; 7 brown-glazed pieces; 78 blue-and-white, 11 black-and-white, and 8 decorated

overglaze polychrome pieces; 45 dark-glazed jars; 1 unglazed stoneware, and 5 pieces of native pottery; 3 specimens of copper or bronze, and 1 of lead; 6 beads, 1 stone specimen, and 4 of shell; 1 bone specimen, and 3 miscellaneous; or 217 specimens in all.

The general conclusion from the above list is that the site is basically 15th and 16th century, unless the monochromes and Sawankhalok black-and-white wares show 14th century types or earlier. This question can only be properly answered by examining the original material, now in the Michigan University Museum, or by visiting the site itself. It is obvious, from the quantity of material obtained, that a very large burial-ground exists in this locality—and it is probable that many other specimens could be obtained there by systematic search.

F. L. Worcester's finds.—While the Frederick L. Worcester Collection, in Zamboanga before the war, contained a number of interesting pieces resulting from the accidental finds on Basilan, it was not until 1937 that he found an actual undisturbed site there. Having had his attention directed to certain accidental finds at Bohelebung, he set about exploring the immediate vicinity by a combined process of probing and excavation. A small midden-site was also located in the area, and a package of specimens sent to me at Manila for study and identification. By preliminary probing in the sand, several small whole pieces (all Chinese and native wares of the 16th century) were located and excavated; and at last, in April–May of that year, a complete jar-burial of an unusually good type was found. A full account of the excavation was sent to me by Mr. Worcester, and at a later date the complete contents of the jar-burial was determined to be late 16th or beginning 17th century; but its contents were rather unusual, and are worthy of a brief description: one tall Middle Ming burial-jar, with six ears, and having an agong as cover; one medium-large polychrome plate of the Chia Ching period, dating between 1530 and 1550; one blue-and-white medium-sized plate, with an ogee edge and a deer-pattern, of the Chia Ching period, c.1540-1550; one blue-and-white medium-large bowl of the Wan Li period, c.1580–1600; one small greyish-white dish, Wan Li type, c.1580-1600; three bronze, or brass jingle-bells; four copper and base-metal rings; four corroded and acid-etched shell bracelets; two human teeth and one small toe-bone (other bones being completely pulverized); seven Chinese copper, bronze, and brass cash (all Ming; three having identifiable dates as Hung Wu, Yung Lo, and Chia Ching); and finally a large quantity of glass, stone, and metal beads, probably originally forming one or two necklaces and two bead-bracelets. Among the metal beads several were gold, of very interesting types—one being a decorated cylinder, and the others round.

When the jar was unpacked, the following order of contents was found: The four dishes were nested together on top,

directly under the agong cover; and next came two skulls and a great mixture of partly pulverized bone-fragments. The bottom third was filled with sand, in which the beads, bracelets, bells, and other small objects were found imbedded.

Two other similar jars were unearthed by Panglima Jalaha—all of them being apparently of contemporary date, and being buried fairly close together. One of the Jalaha jars also contained gold beads, as well as glass and stone ones of the same types as those in the Worcester jar. It is obvious that these burials were made around the end of the 16th century, but before any European influence had affected the area. It is unfortunate that the contents of the Worcester jar were not properly photographed or sketched, as some of the bead types were quite unique, and it is believed that all were destroyed or looted during the war. All that now survives is a small but good photograph of the jar itself, and the agong cover, sent to me by Mr. Worcester in June, 1937, at the time I examined the contents. (The site should be further explored.)

Workers.—(As indicated in the preceding items.) Also N. M. Saleeby, John H. Whitaker, D. C. Beebe, J. R. Mahoney, Pedro Cuevas, H. O. Beyer, William Crosby, Francis L. Link, and others.

66. *Jolo (or Sulu) Island (part of Sulu Province) including Pañgutaran, Pata. Capual, etc.):*

(The Sulu Sultanate historically includes three principal parts: 1. Sulu Island proper—called Sulug or Su'ug by the Moros, and known to the Spaniards as Xolo or Jolo—which is the subject of the present section, including several adjacent smaller islands. 2. The remainder of the Sulu Archipelago, to be considered under No. 67, below. 3. The greater part of British North Borneo, anciently known as the "Kingdom of Saba"; to be considered under No. 68, below.

The earliest Philippine historical and protohistorical records yet known come from Sulu, and go back at least to the 10th century if not before. However, the Island has frequently been devastated by bitter wars, and ancient records have been destroyed time and again—and it is here that historical archaeology plays a most important part in restoring lost data. Something has been done already, along these lines, but there is room for a great deal more of systematic work and patient research, which as yet has been carried out only very sporadically.)

Stone-Age remains—No pre-Neolithic material has yet been reported. Neolithic adzes have been seen by Link and Taylor in possession of several Moros, in the interior of Sulu Island. An extra-large adze made of polished black hornrock or fine-grained basalt, measuring about 10 inches long by 3½ inches wide at the blade, was examined and sketched by John M. Garvan on Pañgutaran Island in April, 1924. It was in the possession of a certain Abdur-Rajak, who was residing in the

house of Maharajah Laping of Pañgutaran. Laping states that it is a true "lightning tongue," and was originally found at the foot of a tree from which the bark had been stripped by lightning. He further states that on Jolo Island there are other similar specimens, but of different sizes, shapes, and colors.

This Pañgutaran specimen is normal except for two projecting knobs, one on each side of the butt, like some Chinese jade-adzes that I have seen. While this shape is well-known from certain early Chinese sites, this is the only specimen yet known from the Philippines.

Bronze- and Iron-Age survivals.—No true Bronze-Age or Early Iron-Age sites have yet been located in Sulu, but it is believed that systematic work would uncover such sites. Cultural survivals in certain areas are very definite, pointing toward the original existence of such cultures in the Island. Late Iron-Age remains have been found by Roth, in certain areas, mixed with the earliest Porcelain-Age remains. It is also possible that a true Iron-Age site, unmixed with later remains, exists near the former Constabulary barracks in Jolo town. These remains will all be discussed in connection with our review of Porcelain-Age sites. The late Capt. F. G. Roth carried out the most systematic work yet attempted on Jolo Island, but his activities were limited by administrative duties and the lack of properly trained assistants.

Porcelain-Age sites and collections.—The earliest and largest ceramic collection in Sulu prior to the war was that belonging to Mrs. Caroline S. Spencer and kept in her home at Indanan. It is believed to have either been entirely destroyed or carried away by looters during the war. The original collection consisted of several hundred pieces, of which nearly half were excavated pre-Spanish grave-pieces while the remainder were mostly heirloom specimens of Spanish-period dates, obtained from Moro homes. A considerable part of the collection was made prior to 1920, and practically all of it prior to 1932; but Mrs. Spencer kept few records except dates and the names of the persons from whom she obtained her material. Utilizing this list, Captain Roth in 1934 was able to recover much of the original site-data—and this will be incorporated in the discussion of the sites which he himself explored.

Doctor Guthe's collection from Sulu was made for him by the Panglima Sabudin, working under the direction of F. L. Worcester, including some material from other Moro collectors. The records kept were subject to the usual limitations of this kind of collecting. Most of the specimens were obtained by a house to house search in the interior of the Island; and the total collected is listed as follows: 45 green, 16 grey, 9 white, and 24 brown monochrome pieces; 23 blue-and-white, 7 black-and-white, and 6 overglaze decorated polychrome pieces; 20 dark-glazed stoneware jars; and 14 miscellaneous ceramic pieces (mostly modern); 1 iron, 4 copper or brass, and 1 glass; or a total of 170 specimens in all.

The Hester Collection contains a few general specimens from Jolo Island (partly obtained from Mrs. Spencer) with site-data—recorded as follows: 1 Sawankhalok jarlet of bluish-green celadon (14th century), a gift from Mrs. Spencer, originally found, with several other good specimens, in an accidentally excavated 14th or 15th century pre-Islamic grave near Bilaan, Jolo Island, in 1931, and 5 other ceramic pieces, from various parts of Jolo Island, without trustworthy site records.

The Roth Sites.—Altogether 16 specific sites were explored on Jolo Island by the late Capt. F. G. Roth in 1934–1935, or were found by one of his assistants at a later date (as indicated in the text). The field-work was all done by Captain Roth and his assistants, with the aid of oral and written suggestions from myself; a considerable part of the expense was paid by Mr. E. D. Hester, who received a number of the whole pieces found; while the working up of the entire collection was carried out by me, and the midden material and most of the nonceramic artifacts were deposited in the University collection. The characteristics of the 16 sites will be listed separately, in brief form, as follows:

Sulu Site 1.—An area known as "Sapa Lawakan," running along both sides of the Taglibi-Tiptipon Road, near Km. 21. The road cuts through a rather extensive burial-ground, which first drew attention to the site. Later, extensive midden deposits were found also. A large collection was made, consisting of whole and broken ceramic pieces from the burial-site; many iron weapons and tools; one iron coin of the special Sulu type (see Site 9); a few ornamental objects; some interesting decorated native pottery; and, finally, a large quantity of midden fragments of many varieties. Conclusions from the story told by the material found are as follows: The site was first occupied by a 13th and 14th century village and burial-ground, which came to a complete end with the entry of Islam in the early 15th century. After an interval of a generation or two, a new and larger village grew within the area, in the 15th and 16th centuries, which village apparently received no Siamese or Indo-China wares at all, probably due to being dominated by a Mohammedan culture-group. (For location of all Jolo Island sites, see fig. 2.)

Sulu Site 2.—This site, also found during the construction of the Taglibi-Tiptipon Road, is located between Km. 24 and 25 in front of the place known as "Bud Timbuk"; and it is located on a gently sloping hillside, a short distance from a fine natural spring in a ravine. A midden deposit was first cut into, at a depth between a half and one meter, where a layer of common red pottery mixed with a few 15th century porcelain fragments begins. Some late Sawankhalok fragments were present, but no

black-and-white wares of the Sukhotai type. Graves were next cut into, and three whole pieces (all of the 14th or beginning 15th century) in the Hester Collection came from there. One is a typical Sawankhalok celadon bowl, one a good "red-bottomed" piece, and the other a 14th century Yuan saucer. A nearby field was found to contain a village midden of somewhat later date—basically late 15th and early 16th century. Thus this area contained two ancient villages—one pre-Islam and the other of the Mohammedan period.

Sulu Sites 3 and 4.—Site 3, or "Bud Kapok," and Site 4, known as "Timaho" or "Tubig-Timaho," are either very close together or possibly may be essentially the same site. Roth obtained a number of good pieces from the site itself, and also a number of good pieces from the same area acquired through Mrs. Spencer. The area is located about half a kilometer from the beach between Tandu-Pugad and Siunugan. The pieces were originally accidentally excavated by Ambutu Balu and Hassan of Tarawi, while planting bananas, before Roth visited the site. The total number of pieces from this area is very considerable—the Hester Collection having 27 pieces, Roth 3, and myself 15 damaged pieces. Of the total of 45, 24 are definitely Chinese, 11 Indo-China, 6 Sawankhalok, and 4 of uncertain provenance. Among Mrs. Spencer's specimens from this area, at least half are of Indo-China wares. The great majority are pretty definitely of the 13th and the 14th century; but there is a small group of the late 15th and early 16th century Chinese wares that seem to clearly indicate that one part of the site contains a burial-ground of later date than the original large village of Yuan times. The later and small village was of the Mohammedan period.

Sulu Sites 5 and 6.—Site 5, "Luas," and Site 6, "Labuan," are both located on the area known as "Tuan Usman's Farm," and can best be discussed together—although the two sites differ in date and characteristics of the material. Site 5 is definitely of the Mohammedan period, containing beautiful Ming thick-glazed celadons, blue-and-white wares, and typical Middle Ming jar-fragments, with no Siamese or other Southeast Asia wares at all. On the other hand, Site 6 contains mostly Yuan and very early Ming wares, plus two Indo-China and three early Sawankhalok celadons, all of pre-Islamic types and dates. However, it is of the last phase of the pre-Islamic period which contains the iron coins of the early 15th century, since some of these are definitely present (see notes on Site 9).

Sulu Site 7.—This interesting site, known as "Laum Sua," includes two areas called "Sakilan's Farm" and "Ohad's Farm." In some ways this area differs from all other

Sulu sites; but this seems at least partly due to its having been occupied longer and more continuously than most of the others. Some 12 whole or nearly whole pieces were obtained here, of which one-third are Chinese, one-third Indo-Chinese, and the remaining third Sawankhalok celadon, all appearing to be pre-Islamic in type and date, but mostly of the later phase.

The large collection of midden material, however, tells a different story. Only 40 per cent is Sawankhalok and pre-Islamic Chinese, and 30 per cent 15th and 16th century Chinese, while the remaining 30 per cent is of the Spanish period. This seems to indicate a continuous village inhabitation from the late 13th century down to modern times, with perhaps a brief interruption in the middle 15th century (the 1430–1450 switch to Islam). However, since the burial site is wholly pre-Islam, it seems likely that after the middle 15th century the dead were buried elsewhere, or without the usual grave furniture of ceramic wares, ornaments, weapons, and other objects.

Study of Sites 1 to 7 indicates that most of the pre-Islamic trade and commerce with foreign lands came to the north side of Jolo Island until Islam entered there and put a stop to it. On the other hand, the south side of the Island seems to have resisted Islam the longest, and to have gone on trading with Siam and Indo-China for a generation or two longer than the north side.

The hiatus in our sites always occurs between 1380 and 1450, and it seems that this 70-year period covers the time during which Islamic influence was slowly spreading over Sulu. During the first half of this period the hiatus is chiefly apparent on the north side of the Island; while during the last half (1420 to 1450 especially), it is chiefly apparent on the south side. It was during this period that what we call the "intermediate type" of Sawankhalok wares came in, and their presence or absence in a site is a remarkably accurate date index to the spread of Islamic influence. (Trade with Siam was apparently stopped as soon as Islam became dominant in a community; and it was not renewed again until the late Satchanalai period.)

Sulu Site 8.—A small site, known as "Bud Laba," where about a dozen whole or damaged ceramic pieces have been accidentally excavated while replanting a banana-grove destroyed by the 1932 hurricane. All of the pieces that I have seen are of the 13th or the 14th century and no post-Yuan wares are known to have been found there. (The site offers an interesting place for further exploration.)

Sulu Site 9.—This site, known as "Tubig Jaikah," is one of the most interesting yet found in Sulu, but has

been very little explored in proportion to its importance. The three lots of material that Captain Roth obtained from different parts of the site all seem to show different dates. The first and oldest lot, found while planting bananas along one side of the area, contains two whole Chinese jarlets of a very early type (probably not later than the 12th century). Captain Roth gathered a small quantity of midden material, partly from the deep holes where the banana-planting was done and partly from shallow cultivation near the surface. The older midden material from the holes is definitely pre-Islamic and with it were found 13 iron coins of the usual Sulu early 15th century type as well as some Indo-China fragments and other 14th century wares. Also some good native pottery of the decorated type. The surface material contained 15th and 16th century Chinese wares, and some Spanish-period fragments as well.

From the total material, it seems likely that three different communities existed in this area in the past—one early Sung, another covering the 14th and early 15th centuries, and a final Islamic-period community beginning in the late 15th or early 16th century and lasting well down through the Spanish period until relatively modern times.

Perhaps the most interesting objects found here are the old Sulu coins, and as this is the last site where any considerable number were found, they will be discussed briefly. After much careful study of the available material and its history, I prepared in 1938 a short paper on Sulu coinage. A few of the conclusions on the pre-Spanish material will be set down here:

The ancient coinage so far recovered from pre-Islamic graves is all of iron, and naturally mostly so badly rusted that the characters and designs are no longer distinguishable. The general appearance is almost the same as the typical Chinese "cash," with a square hole in the center. All of the specimens so far found have come from 15th century graves, and probably entirely from the first half of that century. They are known as *kusingbasi* by the Moros, who say that they are plowed up from time to time in their fields, and who believe that they were made and used by their remote ancestors. They are said to be found with greatest frequency in southeast Sulu and in the Kulay-Kulay area, although Roth found them only in Sites 1, 5, and 9. Even tradition makes them pre-Islam—from a time when the Sulus still ate pork and other now-prohibited foods—and for this reason they call them by a different name from the coinage of the Mohammedan period, which is known as *kusingpiris*. The later coins

are also plowed up in the fields, but they are smaller and are always of copper, bronze, or tin.

The evidence brought out in my paper indicates that the Sulu iron coinage dates from around 1420 A. D., and a little after—just subsequent to the return of the three Sulu rulers who visited the Court of China in 1417. Among the gifts which the three rulers (or high ambassadors) are said to have received at the Chinese Court were 2,000 strings of cash each—and it seems likely that after their return to Sulu they wanted something of the same sort themselves. As iron was the only metal of which they had any great quantity, iron coins, closely resembling the Chinese copper cash but bearing Indo-Malayan characters and designs, were cast in the local smithies. How long this local coinage lasted it is not possible to say with certainty, but it seems most likely that it died out with the introduction of Islam around 1430, or shortly thereafter. Relations with Malacca replaced those with China and Java, and a whole new political set-up came into being. (It is interesting to see how closely Chinese historical records fit in with our actual archaeological findings in Sulu, as well as in other parts of the Philippines.)

Sulu Sites 10 and 11.—Site 10 covers the former Constabulary grounds at Parang; while Site 11 covers the similar grounds at the Asturias barracks near Jolo. They are combined here for the reason that they both contain chiefly decorated native pottery of a special type, obtained from excavations made for building and drainage activities around the parade grounds. At Site 11 only one porcelain fragment was found, and this proved to be very early Ming; but at Site 10 a considerable quantity of porcelain and stoneware fragments were obtained—practically all of the 14th and beginning of the 15th century. The latter site ends with the appearance of the "intermediate type" of Sawankhalok wares; in other words, it comes to an end with the appearance of Islamic influence. A burial-site also existed at Site 10, and one good Sawankhalok green celadon deep dish of fine quality was excavated there as well as the broken fragments of an original whole "red-bottomed" dish of good quality. The decorated native pottery is of special interest, and has been discussed elsewhere.

Sulu Site 12.—This site includes a number of small areas in the Patikul District, to the northeast of Jolo town, in the northernmost bulge of the Island. From one area, known as the "Panding Site," in Lati barrio, two brown-glazed stoneware jars of early Ming types were obtained, as well as a still older unglazed jar that may be Yuan. Another area, known as "Takas Bunka

Ogaon," near Mt. Takas, a little to the south of Patikul town, produced a small but interesting lot of late pre-Islam midden material. The other Site 12 lots seem to be from small and unimportant areas.

Sulu Site 13.—This site, known as "Bud Tukay," covers an important area surrounding Mt. Tukay, a short distance to the northeast of Parang. The part of the site explored by Captain Roth seems to lie only on the south slope of the mountain towards the sea (although a considerable distance from it). Four whole or damaged ceramic pieces were sent to me from this site, while Hester had eight more, and Roth kept one good piece for himself. All 13 pieces are either Yuan or very early Ming, and have evidently come from pre-Islamic graves. They present no unique or special characteristics. (This area and other parts of Bud Tukay should be more carefully investigated.)

Sulu Site 14.—Midden material from Indanan town (partly collected by Roth and partly by myself during one brief visit); so far mostly Late Ming and early Spanish period fragments were found. (But later the nearby Langpas Site was located; see No. 16, below.)

Sulu Site 15.—This site, known as "Bud Makam," contains some interesting probable Indo-China and South China types among the grave-pieces, probably all of the 13th or the 14th century. The Hester Collection contains a good Chinese celadon dish (probably 13th century) from the same site. All pieces were accidentally excavated, and it is evident that the area should be systematically explored.

Sulu Site 16.—This important site is located on the farm of Abdurahman in the sitio of Langpas, Indanan district; and was first discovered on April 21, 1938. Accidentally plowing up some porcelain pieces, Abdurahman took them to the house of Samad Amat (Ahmad), a former municipal president who had been one of Captain Roth's assistants in his previous work. Ahmad instructed Abdurahman how to excavate the site, and took charge of all material obtained which was later shipped to Manila. Although much of the material is broken, it is interesting as coming from a single small site in one field, and all excavated at one time. It was accompanied by several sheets of detailed notes, in the picturesque English of Samad Amat, describing the place and the work done; which notes add considerable interest and value to the lot.

The field is near the house of Abdurahman in Langpas sitio, about 15 meters from the Jolo-Silangkan Road, and may be hereafter known as "Area B." The orig-

inal Langpas Site, which we may call "Area A," was one of the later discoveries of Mrs. Spencer, and had been excavated for her in 1933 by a number of Moros under the direction of the late Counsellor Sali, many whole and broken pieces being obtained at various times. Captain Roth had previously obtained about 20 of these pieces from Mrs. Spencer for the Hester Collection. The original Area "A" was first found by a woman named Hadida, who reported it to Mrs. Spencer in the early part of 1933. The known pieces from that area are all pre-Islam, and contain many Thanh-hoa and other Indo-China types. There is no doubt but that the two Langpas areas are close together, and the location of "B" is positive; but just where the Area A graves lay, in relation to B, has not been exactly recorded.

The following further data relate to Area B only: The collection contains no blue-and-white specimens at all, nor any Siamese wares of any type yet recognized, yet the entire Area B collection seems to date between 1250 and 1350, or wholly within the Yuan period. It is possible that a few earlier pieces may be included, but certainly none later than the date indicated. Only monochromes appear, and yet only one specimen approximates a definitely Chinese Sung glaze quality. A considerable number of monochrome hole-bottomed dishes appear, along with five whole Thanh-hoa types; and, among the Chinese wares, a great variety of the so-called "Lubug glassy glazes" so characteristic of Site F in Rizal Province. Also an interesting intermediate type of glaze that seems to be leading up to the beginning of the "glassy" type.

A few pieces of incised native pottery, and a large lot of a peculiar thin black-glazed stoneware, also appear among the Area B material. On the whole this site is more suggestive of the famous Kalumpang Site 22 of Rizal Province than of any other area known to me, and they seem to be both of about the same date.

Minor Sulu Sites.—A considerable number of single ceramic pieces, or small lots, in both Mrs. Spencer's and Roth's collecting, have come from other areas not listed above, but the data is insufficient or otherwise not worthy of record here. One rather remarkable thing about the Sulu sites is the almost complete lack of beads, jewelry, and ornamental objects in the graves so far excavated.

Ancient historical records and survivals.—Chinese writings of the 15th century and earlier indicate that the pre-Islamic Sulus were using an Indian syllabary of the usual Malaysian type; but no copy of it has survived, because of the early introduction of the Arabic alphabet. Ancient Sulu historical records have all

been transliterated into Arabic writing, and recently there has been a tendency to Romanize many of them. Many destroyed old records were re-written from memory by the royal scribes and others, following some of the wars mentioned at the beginning of this Jolo Island section. Particular attention should be paid in the future to a reconstruction of early Sulu history through use of contemporary records from Mindanao, Borneo, Celebes, Java, Malacca, and other islands, as well as the use of Indian, Arabic, and Chinese accounts. Two famous early travelers who appear to have visited Sulu territory in the 14th century were Friar Odoric and Ibn Batuta. The accounts of these travelers should be carefully studied.

Important monumental remains also exist in Sulu and elsewhere that throw light on Sulu pre-Spanish history. A Sulu king (or "Batara") died in China in 1417, and in 1912 his tomb still stood a short distance outside the Anteh gate at Techow, in the Shantung Peninsula. In 1408 a famous Chinese captain—now known by the ritualistic or sacred name of "Pun-Tau Kong"—died in Sulu, and was buried in the royal teak grove a short distance outside Jolo town. He has become the Patron Saint of the Sulu Chinese, who have reconstructed his tomb and included portions of the orginal stones and inscriptions that remained there. The most famous monument, however, is the tomb of Raja Baginda, which still exists on Bud Datu, back of Jolo town. The original tomb was on the truncated top of a large artificial pyramidal mound, now partly broken down. Alexander Dalrymple reconstructed it in the middle of the 18th century, and placed a new inscribed stone there which still exists. The original stone (dating between 1380 and 1420) was still at the foot of the grave when I first visited it in 1919. (I have good photographs, both of this monument and of that of Pun Tau Kong.)

Other important tombs of early Sulu rulers still exist in the vicinity of Bwansa (fig. 2), and some of them also have inscribed stones set up by Alexander Dalrymple in the 18th century. Also, in 1873 Sir Hugh Low was still able to find two stones from the tomb of Lela Men Chanei, daughter of the Batara of Sulu who became the wife of the famous Nakoda Ragam (fifth Mohammedan Sultan of Brunei, whose reign began about 1500 A. D.), beside her husband's tomb on the hill back of the ancient town. He further states: "I saw two other stones which had formed part of this lady's tomb, in the burial ground at the *Kiangi* above the *Upas*, under a large *waringin* tree." (At Brunei.)

At Parang and elsewhere old graveyards exist which are filled with ancient wooden monuments and markers, but none of these are likely to be pre-Spanish. However, on Sibutu Island and elsewhere such monuments exist in stone, and some of them may be much older. (See No. 67, below.)

Sulu still contains a mine of ancient things, available to the archaeologist, and much further and more systematic work is indicated there.

Workers.—(As indicated under the preceding various items.) Also Francisco Combes, Thomas Forrest, J. H. Hunt, Charles Wilkes, F. H. H. Guillemard, Vicente Barrantes, Miguel A. Espina, T. H. Haynes, Charlie Schuck, Adolph Gunther, N. M. Saleeby, David P. Barrows, Hadji Butu, Sheik Mustafa, Howard R. Hickok, K. W. Walker, W. O. Johnston, Charles E. Livingston, H. Bruce Stephenson, Charles R. Cameron, James R. Fugate, Francis L. Link, Carl M. Moore, Paul D. Rodgers, Sixto Y. Orosa, H. O. Beyer, Princess Tarhata Kiram, Julpa Schuck, Guy Stratton, John W. Ziegler, Hadji Usman, Omar and Hassan Bagis, Arolas Tulawie, Datu Ombra Amilbangsa, and others.

67. *Sulu Province* (*including all other islands except the Jolo group and Cagayan Sulu*): (*Especially the Siassi, Tawitawi, and Sibutu groups*):

(No Stone-Age nor any other specific pre-Porcelain-Age remains have been reported; but it seems probable that future systematic work may turn up at least remains of the Neolithic and after. No systematic work has been done on any island except Jolo itself, and all the numerous finds in the southern islands have been accidental or casual, except Powell's brief exploration around Dungun on Tawitawi and a brief survey of the Sibutu west coast by Crosby and myself. Many of the southern islands are potentially very interesting, however, and some of them are known to have been inhabited from very remote times. Extensive exploration work should be carried out there at the earliest opportunity.)

Porcelain-Age finds and survivals.—Doctor Guthe explored no sites in the southern Sulu islands, except one on the east end of Tawitawi. He gives no results. The earliest collection from the Siassi group went to Mrs. Spencer's Collection, which contained a considerable number of good specimens from Siassi, Lapak, and other places. However, none of the specific sites were recorded, and they doubtless all came from accidental finds. The Hester Collection contained a number of good pieces from South Ubian, Sibutu, and other islands. Only one item of this collection has an exact site-record—a Late Ming brown-glazed jar, with five lion-head ears, which was excavated on the southern slope of the small hill near the northern end of Sibutu Island. Mr. Hester obtained the specimen from the same Moro who excavated it in May, 1933. A number of other specimens have been accidentally excavated on Sibutu, several of which were taken by Willie Schuck to his home in Bongao, and a few others are in my General Philippine Collection.

The Sibutu grave-stones.—The most interesting remains on Sibutu Island, however, are the stone monuments and tombs which line a considerable part of the west coast. They were

examined, and many of them photographed, by myself in company with William Crosby, first in 1921 and more extensively in 1923. These are the best examples of stone tombs and ancient grave-monuments that I know of anywhere in the Philippines; and some of them are very elaborately carved. The designs are more or less similar to those of the wooden markers found on other islands, although some of the scroll-work is more elaborately worked out on the stone. They undoubtedly cover several centuries of time, but just how far back the earlier ones go is uncertain (my own estimate would be the 15th century). Most of them are made of a white coralline limestone (the older ones grey with lichens), but a few seem to be made of other harder stones not found on this Island. All of the remaining specimens, numbering several hundreds at least, should be photographed and studied in the near future. Some of those which are buried in the forest have already been much damaged by trees and large roots.

Many of the carved wooden head-stones, markers and monuments on other islands—mostly made by Badjaos and Samals at various times in the past—are worthy of study and permanent record. The best that I have seen are on Sitangkai, Simonol, South Ubian, North Ubian, and at Parang on Jolo Island; and the great number of types and varieties in artistic workmanship is remarkable.

The island of Simonol also contains the remains of what is said to be the first Mohammedan mosque built in the Philippines (14th or early 15th century); and the vicinity of this ruin should also contain other interesting midden remains.

The Tawitawi area.—My General Philippine Collection contains two interesting specimen-lots (partly destroyed during the war) from Tawitawi Island and particularly from the ancient capitol-site of the Sulu Sultanate at Duñgun—one lot collected by the late Governor Carl M. Moore, and the other by Ifor B. Powell.

The prize specimen of Governor Moore's lot was a heavy stoneware jar excavated in 1926 by Datu Maulana from a grave near the ancient Duñgun site. This grave, by Moro tradition and records, was calculated to be 563 years old at that time. However, upon examining the jar itself it was found to be a South China production from the well-known Shekwan factories; and, while R. L. Hobson believes that the Shekwan kilns go back to Sung times, my own experience with this ware is that it did not enter the Philippines (in the form of jars, at least) before Late Ming times, and most commonly in the 18th century. Therefore, the most that can be said of this Duñgun jar is that it is probably of the 17th or 18th century, and not of the late 14th century, as the Datu Maulana and his Moro friends believed.

The old Duñgun site is very interesting, however, and parts of it doubtless go back well into pre-Spanish times. But the period of Duñgun's greatness was the late 17th and first half of the 18th century, and it is from that period that the specimens in Powell's collection date. Two features of the Powell material are exceptionally interesting: First, the decorated native pottery, which has some unusual and elaborate incised and stamped designs; and, second, the presence of some interesting pieces of large *dinulang*-type dishes of the 17th and 18th century, made in the old Singapore kilns which were discovered by H. D. Collings and myself in February, 1938. (Powell's specimens were collected at Duñgun in April or May, 1928—and we did not then know the source of the *dinulang*-type material.) One piece, found in the bank of a ravine, may even be of the middle 16th century, from the color of the blue design and texture of the ware.

All that is now left of ancient Duñgun (completely abandoned about 1760) is the levelled hill-top or elevation on which the palaces stood, and the remains of a great stone stairway leading up to it. The buildings were apparently all of wood, as no visible walls or stone structures exist; and Powell's specimens were mostly found on the south and west slopes of the truncated hill. The broken remains of three jars found in a ravine are certainly Ming, and may also be of the 16th century.

Pre-Spanish survivals.—Some fine examples of old Sulu gold jewelry, ivory and gold *barong* handles, and of silver, bronze, and copper *buyo* boxes, formerly existed in my General Philippine Collection; but they were all looted or carried away by Japanese soldiers during the early 1942 phase of the war. Many of the better pieces were several centuries old, and all were of pre-Spanish styles.

Some of the native Sulu pottery is still of pre-Spanish types, both as to form and decoration. Especially good examples are to be seen on Tawitawi Island and at Parang on Jolo Island. The pottery stoves of Tawitawi are of an early form, derived from Chinese prototypes coming between the 12th and 14th centuries.

Many other elements of Sulu art, especially in the way of wood and ivory carving, textile patterns and embroideries, and metal work, go back to pre-Spanish and sometimes even pre-Islamic prototypes. Also many features of social life and culture, music, dancing, and dramatic art, all reminiscent of Java and Sumatra, have probably survived since the days of Sri-Vishaya and Madjapahit, although some Malaccan, Siamese, and Chinese influence is also in evidence.

Workers.—(As indicated under the preceding various items.) Also Thomas Forest, Alexander Dalrymple, Capt. Mundy, N. M. Saleeby, Sydney Cloman, H. Bruce Stephenson, Francis L. Link, Edward H. Taylor, Albert W. Herre, Paul D. Rodgers, Percy Machlin, Carl N. Taylor, Aleko E. Lilius, John W. Ziegler, James R. Fugate, F. G. Roth, Hugh L. Scott, Eduard M. Kuder, and others.

68. *Borneo Island (especially British North Borneo, Brunei, Sarawak, and parts of Dutch Borneo)*:

(Being one of the world's largest islands, nearly three times the size of the total land area in the Philippines, and located in the very center of Malaysia, Borneo, ancient home of man, obviously should contain rich and interesting archaeological remains. This Island being bisected by the equator, perhaps its climate together with the generally backward state of political and economic development have been largely responsible for the small amount of exploratory work that has been done. Due to the great size of the area, no adequate account can be given here even of the little that has been accomplished in the way of archaeological studies; but a general outline of the outstanding finds affecting Philippine study will be set down. Many scattered finds of the last two or three decades have not come to my notice, and only a small part of the rich literature in Dutch has been consulted.)

Tektites.—True tektites have been found in small number in three widely separated regions in Borneo, one in the north and two in the south. The oldest known Far Eastern tektite specimen was found in 1836 in a gold placer at Pleihari, in southeastern Borneo; and other specimens were found in the same region in 1897 while the finder was washing diamond-bearing soils. Also to the south of Martapura, in southern Borneo, several scores of tektites have been found in placer workings—of which I formerly had eight specimens in Manila (all but two lost during the war). In northern Borneo, four good tektites were found in February, 1913, by Dr. F. P. Mueller, in a middle Pleistocene sand-bank, or terrace, on the northern edge of the village of Tutong Station, southwest of Brunei town.

The only finds reported during the last 30 years have come from Martapura. The natives value them highly as charmstones, and the Sultan of Martapura wears one, mounted in an ornamental silver setting, as an amulet.

Palaeolithic remains.—In 1878–1879 A. Hart Everett explored some 20 caves in Sarawak; but found no evidences of palaeolithic occupation. However, he did find one famous palaeolithic cleaver, or *coup de poing* (now in the Oxford Museum), which was the subject of much discussion in scientific journals of Great Britain and the Continent, the general conclusion seeming to be that it was the first genuine Palaeolith discovered anywhere east of India. The specimen as found by Everett was lying near the bottom of a gravel stratum exposed in cross-section in the left bank of the Siniawan River, and had to be pryed loose from its firmly imbedded position.

Ling Roth in 1896 illustrated another possible palaeolith or mesolith, labelled as being found in Borneo, in the hands of a London dealer; but no site-locality or other data could be ascertained.

In connection with his 1913 discussion of Neolithic remains in North Borneo, I. H. N. Evans illustrated a core and 14

chert flakes, concerning which he says: "These flakes are extremely abundant in the lower portions of the Tempassuk district, and can be found in numbers on the smaller foothills." This statement, together with the small size of the flakes, seems to tie them up pretty definitely with Mesolithic and Early Neolithic microliths and semimicroliths so common in south-central Luzon, and also found in Panay, Mindanao, Celebes, and other islands.

Neolithic finds and survivals.—Ling Roth, in 1896, found no records of Borneo neoliths; but in 1913 Ivor H. N. Evans published illustrations[4] of 17 polished specimens collected by him in the Tempassuk district of British North Borneo (of which three are possibly Early Neolithic and the remaining fourteen Middle and Late Neolithic). Dr. A. C. Haddon found one adze in Sarawak, and Dr. Charles Hose collected 15 specimens of polished adzes and chisels (also from Sarawak) and presented them to the Cambridge Museum of Ethnography. In North Borneo they are called *gigi guntor* ("thunder teeth") and are highly valued as charms. Three of Evans specimens, and one other that he saw but could not obtain, were of nephrite; while four others were of black hornrock or fine-grained basalt—all similar to the plain-backed Batangas specimens. No true "stepped" or "shouldered" celts occur in any of these collections. One gouge and two or three groovers were found. From Dutch Borneo, Heine-Geldern illustrates a polished Early Neolithic axe of true "walzenbeil" type; but, on the whole, this type is very rare in Borneo finds.

Bronze-Age remains.—Since bronze celts of several typical forms have been found in the Philippines, Celebes and Moluccas, Java, and Indo-China and South China, they should certainly occur in Borneo, but I have not yet come across any record of an actual find there. According to Heine-Geldern, fragments of early bronze drums of the Dongson type have actually been found—probably in Dutch Borneo—but the details are not given. A number of bronze images have been found in the Badjarmasin area, but they all doubtless date from the Iron or early Porcelain Ages.

Early Iron-Age finds.—Two important areas containing actual Early Iron-Age remains have been explored on the west coast of Borneo, one in southern Sarawak, quite thoroughly explored in 1908 by Harold H. Everett and John Hewitt and later re-studied by Dr. Joseph L. Shellshear in 1925, and the other, in Dutch Borneo, casually explored by a geologist in 1923.

The Santubong Island Sites.—This island lies in the delta of the Sarawak River, not far from Kuching. The first important collection known to have been made on the island was by Sir James Brooke, and was lost when the Rajah's palace was sacked by the Chinese in 1857. A good many other important specimens were found on the island at various times and

[4] Man, 86.

carried away by both natives and Chinese. The first systematic exploration was attempted by Everett and Hewitt in 1908, but they by no means exhausted the possibilities of the area.

The main area of exploration was a strip some 50 yards wide, extending for about 1½ miles along the shore of the river, ending at the small Santubong River on the west, and being easily distinguished by the presence of quantities of characteristic black slag. The following articles have been found within this area, which appears to have been both an ancient townsite and burial-ground: Gold ornaments, beads of many kinds, bracelets, quantities of potsherds, iron slag, some Chinese coins, one small Hindu image of baked clay, and several carved stones.

The gold ornaments found were mostly beads of fine workmanship, but some resembled the nose-ornaments worn by Indian women while others were probably ear-pendants. (Similar gold ornaments have been found at other places on the Sarawak River, particularly on the left-hand branch below Penkalanampat, and at Bidi. Also in the north, not far from Tanjong Sipang.) Very few silver ornaments were found, chiefly beads and bangles.

The beads were of many varieties, chiefly of glass and glassy pastes, but a fair number of stone beads also occurred—mainly carnelian, agate, jasper, and rock-crystal. Both round and angular forms were found among the stone beads, and they were obviously of local make as unbored and half-bored specimens were found, and some merely roughly blocked out and not yet polished. A type of bead made from iron slag was also in evidence (as at Novaliches in the Philippines, and at Kuala Selinsing in the Malay Peninsula). Yellow, red, and blue were the commonest colors among the glass beads; and there was evidence that some of these might have been made locally, although others were doubtless imported. Some bead-tubes were found with the individual beads not yet broken apart. The quantity both of good beads and wasters was so great that Everett, Hewitt, and Shellshear all believed Santubong to have been an important ancient center of the bead-making industry. Only a few beads of the striped and spotted types now regarded as of Greek or Roman origin were found.

Fragments of blue-glass bracelets were found, but no whole ones. (Similar types have been found in the caves of Upper Sarawak, and at Sibu, as well as in the Baram district.)

The potsherds found were chiefly of red earthenware, and such Chinese wares as occurred were mostly of crackled celadon. The native pottery was mostly covered with incised or impressed designs. Only a few whole pieces were found, most of them being already broken. Many pieces of crucibles were found, a few of them containing remains of iron slag.

Of several curiously carved stones, a life-size human figure sprawled on a large rock, face downward, is one of the most remarkable. Another is a crudely carved monument, on a

hill 300 feet above the water-level, with curious geometric figures carved on two sides. No sort of written characters or inscriptions were found. The small Hindu clay image is of a female figure, but cannot be dated.

Chinese coins were quite numerous in different parts of the site, and seem to indicate two villages located there at quite different times in the past. One contains only coins running from the 6th to the 11th centuries; while the other is quite modern, running from the 17th to the early 19th centuries only.

Shellshear's later studies make it plain that the older and principal section of the Santubong site is Middle and Late Iron Age, with an Early Porcelain-Age site of the Tang period coming in about the 8th or 9th century. Later inhabitation was in the nature of small villages, covering only portions of the area. The specimen-bearing deposits in the main site are about four feet in depth, and below this the soil is usually barren.

The Papan Island Site.—Some time prior to 1922 Professor Vermaes, of Delft, brought to Prof. R. W. van der Veen for study and analysis some remarkable lumps of blue and green artificial glass that had been found in large number on the small island called Papan, off the west coast of Dutch Borneo. The analysis and characteristics of this glass show clearly that it is identical with that of the Early Iron-Age bracelets and beads (the blue and green varieties only) found so numerously in our Rizal-Bulakan sites, and also at Santubong in Sarawak and Kuala Selinsing in the Malay Peninsula. As these "glass stones," as the people call them, are washed up on the beach by the waves, it seems likely that an ancient Iron-Age village was long ago washed away here by the sea, but that the site was near enough to the present shore line so that artifacts from the village are still occasionally washed up. The finding of this site supports our previous view, developed in all of the other three areas, that the blue and green Iron-Age glass was usually of local manufacture. (The larger lumps of this Papan Island glass are from 2 to 3 inches in diameter.)

Porcelain-Age and burial-cave remains.—A large number of burial-caves have been explored, with various degrees of proficiency, in many parts of Borneo. In addition to the 20 explored by A. Hart Everett in 1878-1879, Shellshear and others explored Sarawak caves, C. V. Creagh, I. H. N. Evans, and Harry G. Keith those of British North Borneo, and various explorers, an unknown number in Dutch Borneo. The results of some of these explorations went into the Sarawak Museum at Kuching, or into the small but good North Borneo Museum at Sandakan. It is to be feared that most of the specimens either were destroyed or they disappeared during the war. Some collections from both areas may have been preserved in the Raffles Museum at Singapore, which escaped serious damage.

Everett's early explorations were not very scientifically conducted, and he seems to have removed only a small part of the material found. His notes indicate great similarity with the Visayan Islands and western Mindanao burial-caves. Wooden coffins, broken burial-jars, and quantities of ceramic fragments, rusted iron weapons and tools, and disintegrated skeletal material are the general characteristics, but there is considerable difference in detail, and as between some localities and others.

The Batu Puteh Caves.—In March, 1895, C. V. Creagh explored a group of caves located in a large limestone hill on the left bank of the Kinabatangan River near the Batu Puteh Estate, in British North Borneo. Several of the caves at lower levels contained quantities of burial-remains in a disturbed and broken condition; but one large cave, high up on a cliffside (between 70 and 80 feet from the ground) was found undisturbed. This upper cave contained 40 ironwood coffins, mostly elaborately carved, each with an undisturbed skeleton inside together with personal jewelry, whole or broken pieces of Chinese and native ceramic wares, weapons, and other objects. Coffins of men, women, and children were found, of various sizes and types of decoration. The men's coffins seemed most frequently decorated with protruding heads of carabaos, cattle, and the like while those of women and children were usually decorated with figures of lizards, crocodiles, and snakes. One man's coffin (with contents intact), elaborately carved with geometric designs and two carabao heads at the ends, was removed to the Sandakan Museum; while the remaining contents of the cave were placed under official protection and preserved in place.

The Bau Caves in Sarawak.—These were first visited by O. Beccari prior to 1868, and he mentions especially the skeletal remains that he found there. Later, some of the contents were removed to the Sarawak Museum at Kuching; and in 1925 Shellshear saw there an interesting gold ornament from a Bau cave, about two inches in length designed in a spiral motif, with two spirals on each side, that seems to be descended from a Bronze-Age prototype. Beccari also speaks of some gold ornaments of various designs found at Pengkalan Ampat, together with a large Persian coin dating from 960 A. D.

Shellshear examined numerous caves in the vicinity of Bau, in 1925, and especially the *Lobang Angin* (or "Cave of the Winds") in which ancient burials were found. Beside one partially preserved skeleton, that seemed to be that of a middle-aged man, a beautiful bronze axe, a bronze bracelet, and several species of shells (including cowries) were found. Shellshear disturbed nothing else at that time, feeling that the site was worthy of systematic study and excavation by a competent archaeologist.

Evans' notes on North Borneo.—About 1912-1913, Ivor H. N. Evans spent some time in the Tuaran and Tempassuk dis-

tricts of North Borneo, and, in addition to his stone implement findings, made several other observations. He states that fragments of old celadon-ware, jar-fragments, and other objects, can be picked up frequently around the bases of the foothills—but he seems to have explored only one such site. He also mentions an interesting ancient gold ornament found accidentally in a rice field.

The one old village-site explored lies on the hill called Tudu, overlooking Usakan Bay, in the Tempassuk district. There seems to have been at one time an ancient fortified village there. Some small excavations were made by Evans, in the way of intersecting trenches about 2½ feet deep. Many fragments of native pottery, animal bones, sea-shells, and other objects, were encountered, and two fragments of Chinese celadon-ware. Two stone implements were also found, one of which appears to have been a polishing stone and the other a grip-marked hammer. By Philippine analogies, the site would seem to be a mixed Late Iron and Early Porcelain-Age culture. Evans had only one day available for the work, and felt that much more could have been found had he remained there longer. (If the site is still undisturbed, it should be excavated and studied systematically, as Evans probably missed the richer part of the area.)

H. G. Keith's Collection.—For several decades past Harry G. Keith has been connected with the Forest Service and in charge of the Sandakan Museum in British North Borneo. During the decade just prior to the war he accumulated a small but good personal collection of about 200 pieces of early ceramic wares (all prior to Middle Ming), mostly found in North Borneo. His own estimate in February, 1940, was that he possessed two Tang pieces; a large number of Chinese Sung, Yuan, and Early Ming celadons; a considerable number of Sawankhalok pieces, both celadon and otherwise; and a few good Early and Middle Ming blue-and-whites. I have no notes concerning specific sites—and his own notes, as well as the collection, were probably a total loss during the war.

Further notes on Neolithic adzes.—Since writing the first part of this section, I have come across the following additional notes in Hose & McDougall's "Pagan Tribes of Borneo" (Vol. II, p. 11, footnote): A. C. Haddon first discovered an adze specimen in a Klemantan house in the Baram basin, in 1899, but Schwaner had many years earlier reported seeing such stones in native houses in Dutch Borneo. In many Kenyah houses, among the charms hung beside the heads, in the galleries or over the fireplaces, one or two stone axe-heads may be found. They regard them as teeth dropped from the jaw of the thunder-god *Balingo*, and it is usually claimed that some ancestor found these stones and added them to the family treasure. They are frequently carried when going to war. The famous Malang chief, Tama Kajan Odoh, who claims descent from Balingo, is

said to possess the unusual number of ten such teeth. They usually will not be sold for any reasonable price.

Historical, heirloom, and literary antiquities.—Many remains of Hindu times have been found throughout the Island, but particularly in Dutch Borneo. The oldest and most famous are the Kutei inscribed monuments, first reported by K. F. Holle in 1879, and presented to the Batavia Museum by the Sultan of Kutei in 1880. There are four inscribed stones in all, originally found at Muara Kaman, some distance up the Kutei River. They were first studied, from handwritten copies of the inscriptions, by Prof. H. Kern, who assigned them a date of 400 A. D. and published several papers concerning them in 1880-1882. They were re-studied in greater detail, in 1917-1918, by Dr. J. P. Vogel who published accurate copies of the inscriptions from well-made rubbings. He agrees with Kern that the monuments were erected by King Mulavarman in 400 A. D., but has made important corrections in translating and interpreting the text. One of the inscriptions gives the names of Mulavarman's father and grandfather (carrying Kutei history back to about 300 A. D.); and shows that the latter had a native name while his son was the first to adopt a Hindu name of Pallava derivation. The time of Hindu entry into this area is thus indicated to be the 4th century, A. D.

A list of several scores of isolated finds of monuments, images, coins, and other datable antiquities of the Hindu period in Borneo, has been published in Java—but I do not now have access to it. Sir Spencer St. John, H. Ling Roth, and others, mention several Hindu monuments, images, etc., as being found in Sarawak—including part of a stone bull that once stood near the bank of the Sarawak River and was later removed to a special shelter near Sir James Brooke's first residence. St. John speaks of gold images of Hindu type being found in land-burials, with other gold ornaments, pottery, and porcelain. "sometimes as much as seven feet deep."

Chinese records contain much data on the early history of Borneo, and several times mention their ancient writing, "which was like that of India." The old Bornean syllabaries have been lost, like those of Sulu and Mindanao, chiefly owing to the general introduction of Arabic writing in the 15th century. Some transcriptions of older records were doubtless then made; but good Mohammedans tended to frown on all that was pre-Islam. Sir Hugh Low has preserved for us some of the best records going back to the beginning of the Islamic period. He has also described some of the ancient monuments and tombstones of the early sultans and their wives, that still existed in his day in the environs of Brunei.

The Panay *Maragtas* has important data on North Bornean history in the 13th century; while the *Pararaton* and

Nagarakretagama of Java say much of Borneo (Tandjongpura) in the time of Madjapahit. Even the early Arab voyagers have accounts of Borneo, although difficult to interpret.

Ling Roth has much to say of ancient writing in Borneo, including inscriptions on the bottom of an old jar and on a dagger-blade, but conclusions are in all cases doubtful. However, it seems quite possible that future archaeological work may turn up inscribed stones or copper plates that may considerably clarify our present knowledge, as they have done so effectively in India, Java, and Indo-China.

Workers.—(As indicated under the preceding various items.) Also Chau Ju-Kua, E. S. Lane, Antonio Pigafetta, Thomas Forrest, Alexander Dalrymple, E. Belcher, Carl Bock, Rajah Charles Brooke, G. W. Earl, W. P. Groenveldt, J. Hunt, H. Keppel, Capt. Rodney Mundy, A. W. Niewenhuis, W. H. Treacher, N. Utsurikawa, Alfred Russel Wallace, J. Whitehead; Pedro A. Monteclaro, Donald A. Owen, James A. Robertson; E. Banks, Major Moulton, W. H. Smith, Owen Rutter, Agnes N. Keith, Dr. Tadao Kano, Martin and Osa Johnson, and others. (See also Addendum for further Borneo data.)

69. *Sangir and Talaut Islands (between Mindanao and Celebes):*

(Known as "the Sacred Islands" to the people of central Malaysia, these two small groups form both a physical and biological connecting link between the Philippines and the Celebes-Moluccas area. Having been very anciently inhabited, they were an important Madjapahit colony, and were found with a quite numerous population when the Portuguese, Spaniards, and Dutch first entered the area. The Sangir people were largely Christianized between 1563 and 1568 by a Portuguese Jesuit named Fr. Diego Magallanes, and remained Catholic under the Portuguese and Spaniards until after the Dutch took over the region in the middle 17th century. Gradually, under Dutch influence, they shifted to the Protestant Reformed Church, which still maintains its influence there. However, Islamic influence from the Moluccas and from Mindanao has been strong, and many elements of the old paganism also survive.

Archaeologically, little or no work has been done in either group, although the opportunities for systematic work are excellent. The oldest known remains are some Neolithic axes or adzes said to be preserved as potent charms by the medicine-men. Bronze- and Iron-Age survivals indicate that these cultures were probably also once current, but no actual sites or excavated specimens have been recorded. Porcelain-Age ceramic specimens have been occasionally collected there, in several of the islands; but there is no record of any specific sites or excavations. Hickson speaks of seeing the tomb of an ancient chief, about 1888, which he describes as follows: "It was a massive structure, composed of a concrete rubble of sand and burnt corals; at one end of it was a rudely carved crocodile, and at the other a model of an old-fashioned European sailing ship."

(The first known European account of these islands is by Antonio Pigafetta, when the remnant of the Magellan fleet called there after leaving the Philippines and Borneo in 1521.)

Workers.—Antonio Pigafetta, F. H. Guillemard, Sidney J. Hickson; J. Crawford, P. A. Tiele, Alfred Russel Wallace, G. A. Wilken, Mrs. Violet Clifton, and others.

70. *Celebes and the Moluccas Islands:*

(No tektites or early Palaeolithic remains have yet been located; all subsequent periods, however, are well represented.)

Late Palaeolithic and Mesolithic remains. The first attempt at systematic work in Celebes was carried out by Paul and Fritz Sarasin in the early years of the present century, and published in 1905. This consisted of an exploration of the so-called "Toala caves" around Lamontjong, and resulted in the discovery of a very interesting microlithic culture of typical Mesolithic character—although Heine-Geldern regards it as Late Palaeolithic. This was the first microlithic culture to be scientifically demonstrated in the Far East, except the classic ones of India. The second was my extensive Rizal-Bulakan microlith area in Luzon, study of which by Stein-Callenfels in 1928 led to his initiating search for similar remains in Sumatra and Java, and to a later resumption of the Celebes research. The latter resulted in new excavation by Stein-Callenfels, van Heekeren, and Willems, in the 1930s, in various parts of southwest Celebes. The work resulted in more Mesolithic "Toalian" finds, together with a new "Proto-Toalian" culture that seems to be truly Late Palaeolithic. The results were partially published in 1937-1938, but were never completely written up in detail. (The set of specimen types from these finds, contributed by Stein-Callenfels in 1937 to our comparative collection in Manila, fortunately survived the war.)

Neolithic finds, excavations and survivals.—As early as 1705 G. E. Rumphius published an illustrated account of the neolithic and bronze implements of Celebes, the Moluccas, and neighboring islands; and nothing better appeared until a similar and more extended review by C. M. Pleyte in 1887. In 1889 Sidney J. Hickson described the *watu ing kilat* ("lightning stones") of the people of the Minahassa Peninsula in Celebes, and demonstrated that they were Neolithic axes and adzes. Concerning them he says: "In some districts they are wrapped up in dry leaves and placed in a pot of water to cause rain, but by the Tombulus and Mongondus they are used as preventatives against lightning." In 1902-1903 A. B. Meyer and O. Richter published an 11-page paper on the "Stone-Age in Celebes," and added new examples. From North Celebes definite Early Neolithic round or oval axes have been demonstrated; and in 1932 Heine-Geldern published an illustration of a true "stepped" form from that area. (Only a few stepped specimens have been found in the Minahassa and the Moluccas, and they have doubtless gone down from Mindanao.)

The only important actual excavation of a neolithic site in Celebes appears to be Stein-Callenfels work at Galumpang—from which we have both his notes and a good set of type specimens in Manila. My judgment of this site, after a careful examination both of his notes and of the specimens, is briefly as follows:

The Sikendeng and Galumpang Sites.—Doctor Cense about 1933 excavated a site at Sikendeng and turned up a good number of polished Late Neolithic adzes, etc. Some natives, seeing Dr. A. A. Cense doing this work, reported that a few years previously, during the construction of a road near Galumpang, quite a lot of stone implements and potsherds had been found. A few months later Governor Caron and Doctor Cense visited the place, and within a short time were able to bring together a considerable collection both of stone implements of various types and of decorated potsherds. Part of the stone implements were of the same polished types found at Sikendeng, but others were of a very different and more primitive type; while the decorated pottery was ornate and highly interesting. Governor Caron accordingly wired Stein-Callenfels and asked if he would come over and excavate the site at the expense of the Celebes Government.

The Galumpang Site is three days' journey by dugout, upstream from Sampaga. The site itself is called Kamassi, lying a short distance to the southwest of Galumpang village, on the last spur of a range of hills jutting out into the plain at this point. The new road runs across the site, and an area of 100 square meters was excavated on each side of the road. It was soon found that the site had been used for agricultural purposes for a generation or two, and that the original stratification of the contents had been thoroughly destroyed. Artifacts of at least three and possibly four different cultures had been stirred up and mixed together. The separation of cultures was therefore wholly on typological grounds. The following culture-layers were decided upon after careful study of the material: (1) The earliest type appears to have been a mixed Hoabinhian and Sumatra-type Late Palaeolithic or Mesolithic culture. (2) The second oldest and most important layer consists of a mixture of finished and partly finished implements, all made of slate and strongly resembling the Formosan type of shouldered axe, as well as one or two similar specimens found in the Philippines. (This type is not found anywhere in southern Malaysia, and must have come down to Celebes from the north in the Middle Neolithic period.) (3) The third layer consists of Late Neolithic polished adzes and chisels of the usual plain-backed types. Some of the polished stone arrowheads and spearheads are probably also to be associated with this culture, but most of the others are of slate and are undoubtedly from the second culture layer. (4) The final decorated pottery bearing layer exactly corresponds to the Early Iron-Age pottery of Rizal Province in Luzon,

dating from the 2nd century B. C. to about the 1st or 2nd century A. D.

These are my own conclusions and not those of Stein-Callenfels, who is inclined to date the decorated pottery as Late Neolithic. He does not mention finding any trace of iron tools, but in the type of site he had to deal with they may have easily disintegrated into small rust flakes that might easily be overlooked or disregarded. As regards the shouldered slate axes, Stein-Callenfels states that similar specimens had previously turned up in both Central and North Celebes, and he agrees with me that they came down from the north and have nothing in common with the other central and southern Malaysian cultures.

He later excavated further at Doctor Cense's Sikendang site, and found more polished Late Neolithic implements; also a pottery-bearing layer which he regarded as contemporary, but which contained much plainer and less highly decorated ware than the Galumpang site.

Bronze-Age finds and survivals.—As already indicated, bronze celts from Celebes and the Moluccas were described and illustrated by G. E. Rumphius as early as 1705. Others were subsequently found, and reached domicile in the Batavia and European museums, but it was not until 1902 that they were again made the subject of a serious scientific study. In the latter year Meyer and Richter published another important 10-page paper entitled "The Bronze Age in Celebes," in which all known finds were reviewed. In 1923 Heine-Geldern correlated the Bronze-Age remains of Southeast Asia and Malaysia, including the Celebes and Moluccan finds, and discussed other remains besides celts, including bronze fish-hooks, other tools, and ornaments. The Philippine finds had not then yet been made, but he illustrates two celts from Celebes and Java that are very similar to those later found in Batangas Province. After the middle 1930s it also came to be known that the large decorated bronze drums of Malaysia (including an exceptionally fine specimen from a small island just south of Celebes) dated from the Bronze Age, and are to be associated with the Dongson culture.

Some huge stone vats and urns, on a plateau in central Celebes, have also been thought to be possibly Bronze Age in date, and to be associated with the stone-urn culture described by Dr. M. Colani from Indo-China. As yet, however, there is no certain dating for these remains.

Iron-Age and Urn-Burial remains.—That the decorated pottery of Galumpang is most probably Early Iron Age (Bronze Age at the earliest) has already been indicated. Certain beads, and specimens and fragments of Early Iron-Age blue and green glass bracelets, have also been reported by van der Hoop and others from the Moluccas and western New Guinea.

True jar-burials—of the same types as those found in Sorsogon, southern Tayabas, and Samar—were excavated in 1937 by W. J. A. Willems at Sa'bang, Central Celebes. Most of the skeletal material had entirely disintegrated. Like other special phases of Celebes culture already noted, there is little doubt but that the urn-burial type came down from the north. (I have shown elsewhere that the most probable motherland of the jar-burial culture is east-central China, and Fukien Province in particular.)

Porcelain finds and survivals.—Prior to the war I had some interesting photographs of extra-large Middle Ming blue-and-white dishes, found in use in sacred ceremonies in western New Guinea and some of the Moluccas Islands by Mr. and Mrs. R. G. Wind, in 1939-1940. Some of them are temporarily buried in pits, and later removed for re-use in other ceremonies.

During the war Commander K. Muto, of the Japanese Navy, who had been stationed in the Makassar and Boni districts of Celebes as an administrative officer, spent some weeks in Manila on his way to Japan in 1943. He had with him more than fifty small ceramic pieces, chiefly of the 14th and 15th century, all of which had been excavated in southern Celebes, which he brought to me for study and identification. I made sketches of a number of them, but due to our poor photographic facilities at that time, I was unable to secure proper photographs. About 80 per cent of the pieces were of types already known from Early Ming graves in the Philippines, but some eight or ten specimens were of unique types not heretofore known from Philippine sites. More than half of the pieces were Chinese, but about 25 per cent were Sawankhalok, and the remainder probably Indo-China, including several good specimens of the special "red-bottomed" variety. All probably came from some four or five accidentally excavated sites in the region between Makassar and the head of the Gulf of Boni. From Muto's description of the area, it is obvious that many old burial-sites and village-middens exist there, awaiting future systematic exploration.

Many good Ming and pre-Ming ceramic specimens from Celebes and the Moluccas also existed before the war in the Batavia Museum. My notes on them were either destroyed or misplaced during the war, and cannot be found at present. It is known, however, that Early and Middle Ming Chinese types, and a considerable number of Sawankhalok and Indo-China pieces, greatly predominate.

Historical records and monumental remains.—The oldest known image from Celebes (and one of the oldest from the entire Malay Archipelago) was found at Sikendang, and removed to the Batavia Museum in 1933. It was studied by Dr. F. D. K. Bosch and dated in the 2nd or 3rd century A. D. It seems to be contemporary with the early Hindu settlement at Kutei, on Borneo, just across the Makassar Strait.

In addition to the huge stone burial-urns in Central Celebes, some very interesting stone monuments have been studied and photographed by Hans Overbeck, in the Minahassa Peninsula. However, most of them seem to date from the early Dutch period in the 17th century. Many are carved with animal and human figures in various postures.

The Bugis genealogies have been recorded and translated into English by Hans Overbeck, but are difficult to interpret. Many ancient historical chronologies and annals from both Celebes and the Moluccas were published by John Crawford in 1820; but something is radically wrong with his dates, which often run back to the 12th century or earlier. The material is valuable, and needs critical re-study in the light of modern knowledge.

Some Moluccan natives were removed by the Spaniards from Ternate to Cavite Province, in Luzon, in the 17th century. Their descendants are still here, and before the war possessed some important records. The old Balagtas Will of 1589 also contains important data on the pre-Spanish relations between the Moluccas and the Philippines.

It is also believed that tobacco (introduced by the Portuguese into the Moluccas probably prior to 1520) reached Mindanao from Ternate before 1530, and was known in Luzon before 1550. It is also believed that it may have been planted in the Sarangani Islands by the Villalobos Expedition, during their 5 months stay there in 1543. In any case, the Ming Annals record its being first brought from Luzon to China in the year 1550, 20 years before Legaspi's arrival in Manila.

Workers.—(As recorded under the preceding various items.) Also E. Belcher, P. Bleeker, Charles Darwin, R. van Eck, N. Graafland, F. Grabowsky, F. H. Guillemard, H. N. Moseley, J. G. F. Riedel, H. Spenser St. John, P. A. Tiele, Alfred Russel Wallace J. N. Wiersma, G. A. Wilken, N. P. Wilken, Bartolomé L. de Argensola, Albert C. Kruyt, J. Macmillan Brown, E. W. V. O. de Flines, Albert Grubauer, Walter Kaudern, J. Th. E. Kiliaan, H. C. Raven, B. A. G. Vroklage, H. O. Beyer, Mrs. Violet Clifton, and others.

CONCLUSION

A perusal of this paper as completed has shown that a few matters seem to require some comment; of first importance is the disproportionate treatment given to the central and southern Philippines as compared to Luzon.

There are three basic reasons for this: First, the abbreviated treatment given the northern provinces was found unsatisfactory, and a more detailed description of actual sites developed as we worked southward. Second, many Luzon areas—such as the Batanes and Babuyan Islands, Pampanga, Rizal–Bulakan (including Manila), and Batangas Provinces—

will require special papers describing the work in greater detail than is practicable in the present paper. And, third, due to their remoteness and the difficulty of checking data, our catalogs and notes concerning the Visayan Islands and Mindanao-Sulu work had been more fully written up than has been the practice with nearby Luzon areas.

As a consequence of the above facts, the southern islands and provinces received a somewhat fuller treatment than that accorded the Luzon areas, although the latter, in point of specimen quantities and informative work done, are the most important. It is expected to balance this inequality, in the future, by a considerable number of special papers on the Luzon areas and on certain specific sites; or it may even be possible to publish the full catalogues of the Rizal-Bulakan and the Batangas Collections. This is particularly important in the case of the Rizal-Bulakan Collection, around 75 per cent of which was destroyed during the war. The full records of the work, together with existing photographs or drawings of destroyed specimens, should be assured of permanent preservation through publication.

While the Luzon areas most need full publication of the work at specific sites as has just been intimated, future publication for the Southern Islands area should be of a somewhat different nature. What is most needed there is first a general interpretive study, comparing the work done in different islands and areas and working out an overall picture of culture distribution and migrations. Particularly, also, the differences between coastal and inland cultures, and the definition of certain specific migration routes throughout the islands.

This brings up a second comment on the contents of the present paper, in relation to a future mapping of culture types and phases. It has not been practicable in the past to carry out any general mapping of prehistoric culture distribution, precisely for lack of such a compilation of data as the present paper attempts to supply. It should now be possible, when time is available for the work, to make up a general map showing, for instance, the distribution of Stone-Age culture phases throughout the Isalnds, so far as they are known up to the present date. Similar charts might then be prepared for Bronze- and Iron-Age cultures, and for the various phases of the Porcelain Age; as well as for such special subjects as jar-burial distribution, burial-cave use, native and

imported pottery distribution, etc. I have no doubt but that many interesting general facts, not now known or properly understood, would be brought out by the compilation of such maps.

Furthermore, I am beginning to envision a second compilation, along similar lines to the present one, to be entitled an "Outline Review of Philippine Ethnography"—but this is a much more serious task, and no present predictions can be made concerning it. However, if such a compilation should prove ultimately possible, we would then have a real picture of Philippine cultural history, both past and present, that would furnish the source material for many volumes of culture interpretation and historical development. (The chief difficulty that bars present consideration of such a compilation is the lack of any truly adequate ethnographic bibliographies, either by provinces or by ethnic groups. The National Language Institute and Prof. Gabriel Bernardo, of the University of the Philippines, had both made good progress with such bibliographies prior to the war, but practically all of their material was destroyed. At the present time my own collection possesses from 80 to 90 per cent of all such material available in the Philippines.)

Lastly, I wish to ask the co-operation of all users of the present work in revising or adding new data to the present record. Many local discoveries or explorations have doubtless escaped my attention; and any notice of such will be greatly appreciated. Communications may be addressed to me personally or simply to the "Department of Anthropology, University of the Philippines." It is expected that additions to the present "Outline" may be published from time to time in the future, as new data accumulate; and all communications of additional data will be duly credited to the senders.

A number of overlooked items have come to my attention after the bulk of the paper had already reached the printer's hands. Where it is not practical to insert such items in the galley proofs, they are added as an "Addendum."

ADDENDUM

[Additions and corrections to the preceding sections.]

In the preparation of a paper as lengthy and as full of detail as the present one is, it was perhaps inevitable that some important items would be overlooked or incorrectly recorded. Minor corrections and additions have been made in the galley proofs, but some items are too lengthy or unwieldy to warrant insertion in that manner. It has therefore been decided to combine all such material in the present "Addendum," which is to be considered as an integral part of the regular text. The various items have been arranged in the same order and with the same numbers for the different geographic areas as those used in the body of the paper—and this section will be kept open for late additions until the remainder of the paper has undergone final proofreading.

The chief known lack in the paper as it now stands is the absence of the full site-list of the Michigan Expedition, and of data on certain local or private explorations which are known to have been carried out in certain localities but concerning which no reliable information has yet been obtainable. Doubtless a number of references in the older literature have also been overlooked, and the present shortage of library material in Manila makes a proper check-up doubly difficult. I therefore ask indulgence for the shortcomings of the present work, and can only express the hope that it may be possible to remedy some of them, in a future supplementary paper when sufficient additional data become available.—H.O.B.

6. *Batanes Islands:*

Jar-burial culture.—Before the war Gilbert Perez possessed one of the largest and best preserved of the Uyugan burial jars (over 30 inches in diameter); while Montenegro turned over to me the three other best specimens excavated at Itbud. All of them were broken up or destroyed during the war, but I have some sketches showing their general form and dimensions.

Porcelain-Age remains.—The Hester Collection contains four very early whole pieces, excavated from one of Montenegro's sites as well as six other heirloom pieces of probable Spanish period dates. The four excavated pieces are all of Late Tang or Early Sung dates—one in particular being a unique small vase of definite Tang style (Plate 16, fig. 2).

14—b. *La Union Province:*

Porcelain-Age finds.—The Hester Collection contains a good celadon dish (with two molded fish in high relief on the inside center), of undoubted Sung date, which was accidentally excavated near San Juan, La Union. The specimen was obtained from Alejo Regasa in March, 1936; and from his description of the site it seems evident that one or more land-burials of the 12th century or earlier exist in the field where the dish was turned up.

15. *Benguet Subprovince:*

Burial-cave remains, etc.—Luther Parker, in his lengthy illustrated thesis on "The Early Bisayans," devotes a considerable section to a discussion of the burial-caves and niches of Benguet, and to the wooden coffins and other remains which he found there. He compares them with the burial-caves of the Visayan Islands.

18–a. *Northern Tayabas (Quezon) Province (including Polillo Island):*

Stone-Age remains.—The late Richard C. McGregor saw a typical Neolithic stone adze in the possession of a native in the interior of Polillo Island, while he was collecting birds there about 1905, but was unable to obtain it. He learned that such implements were known and highly valued as charms among the people there, who called them *ngipin kulug*, "thunder teeth."

24. *Bulakan Province:*

Heirlooms of the Spanish period.—The Hester Collection contains a very interesting dark-blue glazed jar, of South China provenance and probable 17th or early 18th century date, which was found as a treasured heirloom in a small barrio near Bulakan town, in June 1935. A similar piece, from an uncertain source, exists in my General Philippine Collection; while the late Eugene de Mitkiewicz found another in Pampanga, which is now in the W. Cameron Forbes Collection in Boston.

These three specimens represent the best work that I have seen from the Shekwan factories, near Canton; and have a thick varicolored glaze that seems to change color in different lights in much the same manner as certain special types of variegated silks.

26. *Manila City:*

Porcelain-Age remains.—Two exceptional specimens, both found in the deep excavations made when the S. J. Wilson and Trade and Commerce buildings were being built on Juan Luna Street (our Area EE–10), are worthy of special mention.

The first specimen, found at a depth of about 10 feet (under the Trade and Commerce building), is a whole molar tooth weighing nearly 15 kilos from *Elephas maximus* (*indicus*), the "giant Indian elephant." The specimen has been positively identified by Dr. Ralph von Koenigswald; and as the area where it lay has been under water for many centuries, it is well

preserved. By the associated pottery, etc., it can be dated back at least to the 16th century, if not earlier.

The Bureau of Science formerly possessed a photograph of a somewhat similar tooth (fragmentary only) that had been excavated on the Luneta, near the sea-wall, but it may have been originally dredged up out of the Bay. This specimen seemed to have been partly fossilized, and may have been older than the present one. Another related find was the broken half of an elephant tusk, excavated in the Santa Ana Site. Just how these three specimens came into the Manila area can now be only a matter for conjecture.

The second of the two exceptional specimens mentioned in the first paragraph above is a curious small green glazed jar, found at a considerable depth under the S. J. Wilson building (about 2 meters below the street level) in January, 1937—and later acquired for the Hester Collection. By associated ceramic fragments the piece seems to have lain in a deposit of 15th or early 16th century material; but what makes it most interesting is that the vessel is of a style heretofore known only from the early Sung and Tang periods. However, the known Sung and Tang pieces are all black or brown glazed, whereas the present one is covered with an opaque green. It is thus either a later copy of an early style, or a genuine early piece of unusual coloring (the type of green and paintlike quality of the glaze suggesting the Tang period). In the latter case, the specimen would likely have been an heirloom piece brought to Manila in the 16th century by an early Chinese resident of Binondo. The undamaged condition of the little jar indicates that it fell in the water and was covered with silt.

The considerable number of whole ceramic pieces found in this area indicates that the houses were built over the water. This is definitely proven by the great number of piles found at various depths throughout the EE–10 area and vicinity. The small forest of pile-stumps indicates many generations of pile-built dwellings within the area.

36. *Mindoro Island:*

Literary and historical survivals.—During the first six months of this year Harold Conklin has collected more than three hundred Mangyan manuscripts in the old syllabary—mostly inscribed on bamboo strips and cylinders, but in some cases on lime-tubes, musical instruments, and the like. His collection of old songs, traditions, and magic notions and formulae is especially good. Some interesting fossils and a large ethnological collection were also secured. (Since July he has transferred to Palawan Island, where he is carrying on similar work among the pagan Tagbanuas.)

My son, William G. Beyer, also visited southern Mindoro during April and May of this year—securing several good Mangyan lime-tubes, musical instruments, etc., inscribed with old songs; also a number of good fossils and other geological specimens.

39. *Tablas Island:*

Stone-Age remains.—During Edward H. Taylor's 1923 trip, previously referred to, he saw a black Late Neolithic stone adze in Odiongan, belonging to a man named Luis Permelo who claimed to have found it at the foot of a lightning-struck tree, in the hilly interior of the Island. He would not part with it for any reasonable price.

Porcelain-Age remains and burial-cave explorations.—Dr. Carl E. Guthe explored at least two caves on Tablas Island in 1923 or 1924, and has described one of them. This is a fissure in the limestone cliffs, about 150 feet above the highwater mark, near the northeastern point of the Island, and is frequently heavily washed by rain-water coming down the fissure. He estimated that about six burials had been placed in the fissure at various times, causing a deposit of ceramic sherds and other objects in an area about 5 or 6 feet long by 4 feet wide, to a depth of about 18 inches. The following specimens were obtained there: 1 green, 3 grey, 17 blue-and-white, and 1 black-and-white ceramic specimens, 9 pieces of dark jars, 1 overglaze decorated fragment, and 1 of native pottery; 2 skeletal; or 35 specimens in all. This list would indicate that the burials were all of the Ming period, and none earlier than the 15th century.

Doctor Guthe also visited one or two caves in Romblon Island, but gives no data concerning them.

41. *Masbate Island:*

Porcelain-Age remains, ancient mines, and cave-explorations.—Dr. Carl Guthe records ten sites as having been investigated in Masbate, of which six were caves, two burial-grounds, one isolated land-burial, and one miscellaneous or doubtful. Three of the most productive sites have been described to some degree in published reports, and the data may be summarized and interpreted as follows:

First, a site at an old placer gold mine on the eastern shore of Port Barrera, northwestern Masbate. Ancient gold-workings were found here, where a vein outcrops on the southern exposure of the hills. Below this outcrop was a large talus-slope, in which many ceramic fragments and other evidences of ancient inhabitation were found. Doctor Guthe and his party spent several days there in 1923, and secured the following midden material: 1 skeletal specimen; 3 metal objects (two of iron and one of copper or bronze); 6 stone artifacts, and one shell ornament; 4 green, 1 grey, 2 white, 30 blue-and-white, 2 black-and-white, and 3 overglaze ceramic fragments; 3 pieces dark jars, 2 of native pottery, and 2 miscellaneous objects; or 60 specimens in all. The general evidence of the material indicates a Middle or Late Ming site.

Second, a site in the extreme northwest tip of the Island—accidentally found in 1923. This consisted of one interesting jar-burial of the early dragon-jar type, containing the cleaned bones of an adult and other objects. The jar was greenish-

brown glazed, and covered by a broken celadon bowl; while under the jar there was a stoneware bowl with a badly disintegrated glaze. The teeth found in the jar were particularly interesting, as the four upper incisors had all originally been decorated with gold plugs, two of them still having seven plugs or small disks in each. They have been illustrated in Doctor Guthe's paper on gold teeth.

This burial shows close kinship to those in the Hacienda Ramona Site in Pampanga Province; and the date cannot be later than the Yuan period (13th or beginning 14th century). The possibility of an earlier date depends entirely on the characteristics of the dragon jar, which are not stated. (If the dragons are archaic and high up on the shoulder of the jar, it may be pre-Yuan; if on the contrary they are large and low down in the middle of the jar, the specimen cannot be older than late Yuan or Early Ming—say 14th century.)

Third, a site consisting of a small cave or rock-shelter, located near the town of Malibon, in the northwest tip of the Island, just a few miles from the jar-burial described above. Decayed fragments of a wooden coffin, sizable pieces of a glazed dragon-jar, disintegrated skeletal remains, monochrome stoneware bowls, and pieces of unglazed jars were all mixed together indiscriminately on the cave floor. Screening the deposits in several parts of the cave brought to light bone beads, points of deer-antlers, a thin gold disk with an embossed design, and 70 miscellaneous human teeth of which three had been ornamented—one being empty and the other two having thin gold plugs still in place. The impression given by this material is that there were two types of burial of different dates. The unglazed jar-fragments, bone beads, deer-antlers, etc., suggest Sung or earlier; while the coffin and dragon-jar fragments, with the gold teeth and embossed ornament, are doubtless Yuan or beginning Ming.

Importance of Masbate.—The above finds, added to the long list given in the body of this paper, emphasize again the great importance of Masbate Island as a field for future archaeological work. Neolithic, Iron-Age, ancient mines, and both early and late pre-Spanish Porcelain-Age deposits, have all been amply demonstrated. The productive territory covers several extensive areas, most of which have as yet been very inadequately examined. It seems to offer ideal territory for a systematic expedition of some magnitude, prepared to spend at least a year or two in the work. (Also see page 367.)

42. *Samar Island and Province:*

Stone-Age remains.—Since closing the body of this paper, I find that in November, 1924, Dr. Carl Guthe sent me sketches and measurements of two interesting stone implements from Samar (no definite localities given); while in May, 1931, Prof. J. Ralston Hayden sent me a photograph and full measurements of a polished Middle Neolithic adze-gouge found in a Samar

cave by Dr. J. W. Chapman, of Silliman University, Dumaguete, Negros. Still later, on October 19, 1934, Dr. Robert B. Silliman brought that implement together with another smaller Late Neolithic plain-backed adze, found in the same Samar cave, to Manila for study and identification. Good drawings of both specimens in four positions, natural size, were made at that time by Miss Natividad P. Noriega. The specimens were returned to the Museum at Dumaguete, and their subsequent fate during the war period is not yet known.

One of the two pieces sketched by Doctor Guthe is evidently a true late palaeolith, of a modified cleaver type, made of flint or a flintlike quartz; and is a little over 2 inches long by 1½ inches broad. The other piece is flaked or chipped from a hard limestone, and seems to be more in the nature of a protoneolith, about five inches in length.

Of the two Neolithic Samar adzes from the Silliman Museum, the larger specimen is a gray adze-gouge over 6 inches long, by 2 inches broad and 1 inch thick; and it is made of a porphyritic andesite with shattered hornblende crystals. The smaller specimen is a mottled greenish-grey adze, also of porphyritic andesite with hornblende crystals. It measures 2¼ by 1¾ inches, and ½ inch thick.

The above described implements seem to indicate that both Late Palaeolithic and Neolithic cultures existed in Samar; and the exact location of the finds should be obtained from Doctors Guthe and Chapman.

Further Burial-cave explorations.—In addtion to the Suluan Island Site in southeastern Samar, which has already been discussed in the body of this paper, Dr. Carl Guthe also explored two burial-caves on small islands just off the west coast, and a little to the east of Daram Island 13 miles due south of Catbalogan. The material in both caves had been much scattered about, but they had both apparently been long used as places of burial. In addition to 34 teeth ornamented with gold plugs, disks, etc., and a great quantity of miscellaneous skeletal material, the following other classes of objects were found in the two caves: (1) Numerous fragments of porcellanous and stoneware bowls, dishes, and the like, all with celadon or other monochrome glazes (green, gray, or brown); also black-and-white decorated Sukhotai or Sawankhalok wares, blue-and-white Chinese and Indo-China wares, and fragments of stoneware jars with greenish-brown glazes. (2) Fragments of native pottery, both plain and decorated. (3) Several iron tools or weapons, some of which seem to have had handles of deer-horn. (4) Numerous ornaments, including bracelets, rings, and beads of shell, stone, and gold. (Some filed and red-stained teeth were also found, in addition to those with gold pegs.)

While it is impossible to judge accurately without a personal examination of the material, it still seems quite evident that at least three culture-periods are represented by the finds in

those two caves: A Late Iron Age, an Early Sung, and a mixed Yuan-Early Ming seem pretty clearly indicated. (Other minor culture divisions might well appear on closer examination.)

43. *Leyte Island and Province:*

Stone-Age remains.—In April, 1941, I received from Rodrigo O. Velez, of Cebu, a polished black stone adze that had been accidentally excavated some years previously in Ormoc, Leyte; and had been kept during the intervening time in the Velez Collection at Cebu. All three of the adzes so far obtained from Leyte are early Late Neolithic types, with plain backs or only slightly shaved transitional butts. Of the three, two are of black basalt, while the third is of a grey stone material not yet identified.

44. *Bohol Island and Province:*

(Since completing the main part of this paper, several new items have come to light—adding to or clarifying previous Bohol data. The most important are listed below.)

Stone-Age finds.—The sketch of a possible palaeolith from Bohol, sent to me in November, 1924, by Dr. Carl Guthe, has been located. It appears to be a well-flaked late Palaeolithic or Mesolithic specimen, of roughly conical shape and about one inch in base diameter. The material is not stated, but it has a polished sheen like jasper or chert. It was found in the excavations at the Sukgang cave, east of Loay.

In the same cave two Middle or Late Neolithic adzes, rather thick and made of a dark polished stone, also turned up. The edges of both were somewhat chipped or broken. (As they had already been packed away, no sketches of the adzes were sent.)

Additional burial-cave find.—In the spring of this year (1947) Governor Eutiquio Boyles, of Ubay, Bohol, reported to Dr José Feliciano, of Manila, that an interesting burial-cave containing wooden coffins with skeletal and other remains, had been found at Pupug barrio, Mabini, Bohol; and suggested that something be done about it. (Up to present writing no attempt has been made to remove the remains; but the Natural History Museum may later send a qualified man there.)

Porcelain-Age sites and finds.—The important Tagbilaran Site, investigated by E. D. Hester in 1939, has already been described in the main part of this paper; but it is now possible to give further data on three other interesting Bohol lots in the Hester Collection.

The first lot consists of two celadon dishes of fine quality, obtained for Mr. Hester by Pedro Menguito in March, 1934. They were the result of accidental excavations in or near Maribohok; and at a later date Menguito obtained several other good pieces in that vicinity—both for Mr. Hester and for myself. The largest celadon is nearly a half meter in diameter, and bears a good-quality floral scroll design. It is probably of Yuan or Early Ming date.

The second lot consisting of six good ceramic pieces, all excavated in the village of Maysáan, was obtained through the agency of the late José Crespo, then chief-engineer of the S. S. "Panay." All of the pieces are monochromes of Chinese and Indo-China origin, and appear to date all or mostly from the 13th century. It seems evident that several burials of the Yuan period are located in or near Maysáan village.

The third lot, also obtained through Crespo in November, 1934, consists of three pieces found in Baklayan, Bohol. All three pieces are blue-and-white ware of the late 14th or early 15th century; and one of them is a very unique water-vessel in the shape of a domestic fowl, with the head and tail representing spout and handle, and with a further peculiar modification of the hole-bottom base. One of the three pieces (a medium-small jarlet) is definitely akin to the "red-bottomed" group, of probable Indo-China origin.

46. *Cebu Island and Province:*

(Also in the case of Cebu, which is our most intensively explored area south of Luzon, a number of important items were overlooked. Part of them were with a group of mislaid papers recently located, after the main part of the present work had already been sent to the printer.)

Stone-Age remains.—In 1874–1875 Dr. J. B. Steere made a scientific collecting trip through the southern Philippines, and has the following note concerning an old Spanish priest at Carmen, Cebu: "The old man, after a long search, found a curious stone axe which he had found when digging in the hillside upon which the church and convent stood, along with gold beads, a Chinese cup, and human bones. This was the first time that I had seen anything that told of an earlier occupation than the present one."—(Note furnished me by the late Prof. J. R. Hayden.)

Porcelain-Age sites and finds.—In addition to the data given in the body of this paper, it is now possible to add three important items concerning early finds and collecting activities:

First, in tearing down some old walls in 1843 at the town of Cordoba, on Mactan Island, a remarkable small bronze image of the Hindu god Siva was found; later presented to the museum of the Ateneo de Manila, and destroyed by the Ateneo fire some years before the war. It was identified in 1912 by Dr. G. P. Rouffaer—at which time I had it photographed and measured. It probably dates from the Madjapahit period; and it would be interesting to know the character of the "old walls" torn down a century ago, as it is possible that they may have been of pre-Spanish construction.

Second, concerning the important site on the hill above the Naga cement plant, I have examined two other small but interesting ceramic collections found there. One belonged to the late Alfredo Pardo de Tavera, and the other to Mr. Claude Russell. Considering their material and that in the Michigan Collection as a single lot, it appears that this site is wholy pre-Ming and

parts of it go back to a late Tang or very early Sung date. Two of the pieces are of pure white *pai-t'ing* ware, with embossed decoration; and nearly all of the specimens are among the finest Sung-type wares yet found in the Philippines.

Third, it is now possible to give some account of the Cebu material in the Hester Collection and brief notes on six of the sites represented. The total Collection contains over 500 ceramic pieces obtained from Cebu collectors or agents, but the great majority have no proper site-data or field-notes attached. However, the following site-notes for six small special lots are worthy of record:

(1) A good small green Lungchuan celadon dish of the special "tub-shaped" variety was excavated from a grave in the Guadalupe hils, just back of Cebu City, prior to 1933, along with a number of other good ceramic pieces acquired by Mrs. Robert Landon, of Cebu. Later, in 1935, Mr. Landon gave Hester two pieces said to have been found in the same area. One is also a tub-shaped dish of late Sung date, but the other represents a much later site, being a Sawankhalok piece of 15th or early 16th century date. It is probable that there were two sites in this locality—both excavated by Landon's employees.

(2) A large grey-green celadon dish with fluted sides, of late Sung or Yúan date, was excavated in October, 1933, from a single land-burial site in the barrio of Pongwa, Cebu, and was obtained for Hester by Pedro Menguito in March, 1934.

(3) A small tub-shaped green celadon dish, also of late Sung or Yúan date, was excavated in Bantayan, and obtained for Hester by Pedro Menguito in March, 1934. A number of other good specimens in Manila collections have come from the same area in which this piece was found.

(4) Another tub-shaped dish with an olive-brown glaze was excavated in Lagtang barrio of Talisay, from a pre-Ming grave. It was obtained by Mr. Hester at the same time and in the same way as No. 3.

(5) An interesting melon-shaped jarlet with eight deeply molded lobes, covered with an opaque white glaze of Indo-China or Swankhalok type, was excavated at San Remigio, Cebu, and obtained for Hester in November, 1934, by José Crespo. Other pieces found with this specimen were taken by a Cebu collector. The date is 14th or 15th century.

(6) Three probable 14th century Siamese pieces all excavated from a single site in Dumanjug, Cebu, were obtained by Hester at the same time and in the same way as No. 5. One specimen appears to be the type called "Lopburi ware" by Phya Nakon; while the other two are normal early Sawankhalok pieces. (My own collection confirms the existence of a 14th century site in Dumanjug.)

49. *Panay Island:*

Burial-caves.—In 1914 Petronilo Cortez, head ranger of the Iloilo Forest Station, reported that in Balison barrio of Pilar, Capiz

Province, there exists a cave containing many old coffins of native hardwoods, and other remains. At that time five reasonably whole coffins were counted, and many broken and decayed ones. The local inhabitants fear to disturb these remains, which they believe go back to a very remote period.

Along the Panay Railroad, between Ventura and Buntog, there are very high cliffs of white coral rock, said to be honeycombed with caves. They can be reached from Dumalag, which contains, also, a very old and interesting church. It is not known whether there are burials in these caves or not, but the local people believe that they are inhabited by evil spirits and noxious animals.

51. *Kalamian Islands:*

Burial-caves.—In August, 1884, Alfred Marche visited a number of burial-caves on the small island of Peñon de Coron. He seems to have obtained chiefly skeletal remains, some pieces of native pottery, edible shell-fish remains, and a number of curious stone sinkers. Dr. Carl Guthe's finds on the same island have been already described in the main part of the paper. Marche has many interesting comments on the life, culture, and history of the pagan Tagbanuas, throughout the Kalamian Islands and Palawan.

56. *Surigao Province:*

Burial-caves and other remains.—About 1880 Dr. J. Montano visited the Magbulacao cave near Dinagat Island, northeast of Surigao town. Also the Tinagho cave on the islet of Taganaan; and two caves at Kabatuan, on Lake Mainit. He seems to have obtained chiefly skeletal remains in which he was particularly interested.

Among the specimens obtained by Dr. Carl Guthe from Surigao caves, he mentioned one unglazed piece that from his description seems to be a Khmer ware, similar to Babcock's Leyte jar, and my own finds from Bohol, Cebu, and eastern Negros. If so, this is the first report of this ware outside the central Visayas—Doctor Guthe's other mentions of it being seven pieces or fragments from Bohol, two from Cebu, two from east Negros, and one from Zamboanga. It is interesting to note how closely his earlier finds correspond, both in distribution and proportional quantity, with my later ones.

In another place Doctor Guthe speaks of "some very interesting winged clay pipes from eastern Mindanao"—doubtless referring to his finds in the Surigao caves. The only pipe in my collection that corresponds to this description is also from Surigao; see the Peters' Site near Placer, already described.

58. *Samal Island (in Davao Gulf):*

Burial caves.—About 1880 or 1881 Dr. J. Montano explored a number of burial-caves and niches on the small Malipano Island, on the west coast of Samal. He obtained chiefly skeletal ma-

terial. (See account in Chapter VIII of his "Voyage aux Philippines et en Malaisie," of which no copy is now available here.)

68. *Borneo Island:*

Stone-Age remains.—In 1935 Doctor van der Hoop published notes on a Neolithic barkcloth beater from Dutch Borneo, very similar to those found in the Philippines. (Illustrated in Plate 36, Catalogue of the Batavia Museum issued in 1941.)

In February, 1912, J. C. Moulton published a paper entitled "Some stone implements found in Sarawak," in Vol. I of the *Sarawak Museum Journal*, of which no copy is now available here. (Also see page 12 of the "Report on the Sarawak Museum for 1906," by J. Hewitt.)

The original report on Everett's palaeolith was printed in the *Proceedings of the Royal Society*, No. 203 (London, 1880) pp. 6–7.

A very important account of stone implements in Borneo is also contained in A. C. Haddon's "Headhunters, Black, White, and Brown" [London, 1901) pp. 327, 368–375, and fig. 33] (showing four Neolithic adzes and gouges). They are commonly regarded as toe-nails of the thunder god, and as having great potency as charms.

Miscellaneous data on Philippine caves and general finds.—The following data have been furnished by University students and instructors, on the presence of caves or other remains in their home districts. In most cases it is uncertain whether the caves contain human remains or not, but some of them are undoubtedly worthy of investigation.

(1) Julian Maguigad reported in 1921 that there are two good-sized caves in Cagayan Province, at a place called *Kira*, near Mt. Kalao. One of them was first discovered in 1906 by an American teacher named Duncan. It is in the face of a steep cliff high up on the mountainside, and can only be reached by a rope ladder.

(2) Francisco C. Domingo in 1921 reported that there is a very deep cave just northeast of Bauang, La Union Province, called "Lipit." It contains many bats. The local people fear it greatly, and will not enter it.

(3) F. C. Domingo also reports that near the towns of Mayantok and Santa Ignacia, Tarlac Province, there are many small and medium-sized caves. Some of them are as much as 8 by 12 meters in size. During the rainy season the Aetas or local Negritos often use them as shelters. Some also contain bats. (This group of caves should certainly be investigated.)

(4) José Bautista in 1921 reported that, in addition to the well-known Montalban cave, there are numerous other caves worthy of investigation in the Puray, Wawa, and Marikina River Valleys in Rizal Province. Some are known to contain only bats, but others are rumored to possess hidden treasures.

(5) The late Hammon H. Buck reported to me about 1922 that there are some interesting unexplored caves near Alfonso, in Cavite Province—especially to the south, in the barrio of Esperanza—

and that there are two interesting caves in the Talisay Ridge. (A Teacher in Talisay, married to Maria Laurel, knows their location.)

(6) Gregorio Sancianco in 1921, and several other students at later dates, have reported a number of interesting caves in Batangas Province. On Kamotas peak of Mt. Santo Tomas there is said to be an enchanted cave, about which a legion of stories are told. It is said that a coffin filled with precious stones was once obtained from it. There is a large cave at Altura, 6 kilometers from Tanauan; and another called *Malaking Pulo'* about 1 kilometer from the Altura cave. In Bagbag barrio there is the *Pintong* cave (about 9 kilometers from Tanauan); said to contain dishes and other utensils. It is also said to have been inhabited before the great eruption of Taal Volcano in 1754.

(7) Sometime in the early 1930s Captain Baja, of Lucena, reported seeing a number of undisturbed burial-jars in a cliff at the left entrance of the river mouth between Mulanay and Bondó, Tayabas Province. Broken ceramic wares, bones, and other objects were seen in the place. The nearest railroad station is Panson; thence to Mulanay by boat.

(8) In August, 1935, Dr. Francisco Gomez reported finding in a barrio of Naga, Camarines Sur, while cutting through a small hill, several pieces of (fossilized?) mammalian bone and one very large tooth, all at a depth of about seven meters in apparently undisturbed strata. The strata from the surface down are as follows; first thick black clayey soil, then soft adobe stone (*tufa*), then clay, then red sand, then rather hard adobe stone—and it is under this latter stratum that the bones were found. (This site should certainly be investigated.)

(9) The late E. E. Schneider called my attention to the fact that the well-known Bikol dictionary by Marcos de Lisboa (first issued in 1754; reprinted in 1865) has the word "*onto*'" for Neolithic stone axe, defining it as follows: "Los dientes delanteros de arriba." In other words, "teeth fallen from the sky."

(10) Students from Marinduque have reported as late as 1925 that the Talembang cave near Boak still contains bones, pottery, etc., in considerable quantity. Also the six small caves on the Tres Reyes islet.

(11) The late Prof. Otto J. Scheerer called my attention to a note in Montano's "Rapport" (Paris, 1885), p. 333, in which he states that polished stone axes are called "teeth of the thunder beast" on Mindanao; and that Sebastian Vidal y Soler had a collection of polished axes, adzes, chisels, and the like, obtained from that island. (It is known that Mrs. Vidal removed the family possessions to Philadelphia before the Spanish-American war, and spent her last years there—so it is possible that this collection is still in the United States.)

In closing the Addendum it may be of interest to point out that while the nature and length of the present paper has precluded the addition of an adequate Bibliography, nevertheless

such a work is in the course of preparation and the need of publishing it at an early date is fully appreciated.

The basic plan of the work, which must of necessity include several hundreds of titles, is to follow the same geographic arrangement utilized in the present paper—and to include under each serially numbered area all important or essential references, printed and manuscript, so far as knowledge of them is available here. Minor or inaccurate references, that contain little or no real information, will be intentionally omitted from the list. In other words, the "Bibliography of Philippine Archaeology by Geographic Areas" is indicated to be an essential supplement to the present geographic review of the material itself.

In listing important manuscript compilations, such as my two general works mentioned in the Introduction and the specimen catalogues, a full list of the included individual papers or chapters will be given. For this reason the list of "Philippine Archaeology" papers will not be added to the present already too lengthy production, and it should be looked for in the "Bibliography" which it is hoped will be published within the coming year. If feasible, some additional site-maps and supplementary notes to the present paper may be included at that time.

—(H. O. B., August 31, 1947.)*

* As the passage of this paper through the press has been considerably delayed, I am taking advantage of the opportunity to add the following six final notes to the page proof:

(1) *Pardo de Tavera Collection.*—At least 80 per cent of the collection of old Philippine ceramics, woodcarvings, manuscripts, photographs, etc., formerly owned by Dr. T. H. Pardo de Tavera, survived the war and is now in the hands of Mrs. Alfredo Pardo de Tavera in Quezon City. Especially notable are several excavated and heirloom pieces from Cebu and other Visayan Islands: Sawankhalok celadons, etc., from Marinduque caves (see p. 260); and, above all, the only known perfect specimen of "Manila Ware" from the 17th century San Pedro Makati kilns. It is to be hoped that this collection may be ultimately acquired by the National Museum.

(2) *Janse's finds at Calatagan in Batangas.*—The excavations and finds of Olov T. Janse, already briefly described on p. 245, have recently been made the subject of an illustrated article in the 1946 Annual Report of the Smithsonian Institution. As Doctor Janse's contacts here were almost wholly with administrative officials who were unfamiliar with the scientific work being carried on, it is not surprising that he makes some very incorrect statements concerning Philippine Archaeology in general.

While the work at Calatagan was systematically done, it is to be regretted that Doctor Janse made no attempt to familiarize himself with what had been previously accomplished in Philippine Archaeology or to examine even superficially the collection of more than half a million classified specimens then stored up in Manila—nor the more than 20 volumes of exploration records and horizon-determinations that were accessible to any qualified scientist. In fact, the identification and dating of a majority of his finds were

done by myself at the request of the Director of the National Museum.

While publication of archaeological results has been admittedly slow, in the Philippines, the amount of work actually accomplished is amply demonstrated by the present paper—and as more detailed site-studies are published from time to time, the results can easily speak for themselves.

(3) *Additional notes on Stone-Age finds from Masbate.*—The following old notes on Masbate stone-implements and cave-remains, by Wilbur Wilson, have recently been recovered: "In 1903, three large stone mortars and three stone pestles were found in one of the ancient mine workings at Rio Guinobatan. The largest mortar was nearly 3 feet in diameter. Some grooved hammer-stones, mostly spherical, were also found that year in the same locality— the biggest being 6 inches in diameter, completely encircled by a groove ½ inch wide."

In May, 1911, a polished black stone adze, about 2 inches wide at the blade, was found by Wilson in the north Batuñgan cave, in the same area where Smith's later finds were made in 1920. Later on, three or four other stone implements (adzes and chisels) were found on the floor of the small room adjoining the larger cave. Wilson believes that still others might be found in one portion of the cave where a cave-in has covered a considerable section of the floor.

Wilson's notes further state that several interesting caves exist near San Isidro, Masbate; and another one on Captain Heath's ranch at Bugtong. He has also seen interesting remains in some caves on the north end of Ticao Island.

(4) *The Babcock Collection, from Leyte, Camiguin Island, and Lanao.*—Recent information on the fate of this interesting collection (discussed on pp. 275–276, 300, and 317, *ante*) has come to hand with Major Babcock's postwar visit to Manila as a member of the Veterans Administration.

While most of the smaller pieces in his collection were shipped or taken by him to the United States prior to the war, all of the larger pieces were left here—stored in a room at the Y. M. C. A. Apparently all of the latter (including the unique Khmer vase from Leyte) were destroyed or looted during the war, as he has not been able to find any trace of them. This constitutes a real loss to Philippine ceramic history—particularly as no adequate photographs or drawings exist.

(5) *Philippine Craniology.*—In 1901–1904 G. A. Koeze published his valuable *Crania Ethnica Philippinica,* giving detailed measurements and descriptions (and many illustrations) of 249 Philippine skulls from the Schadenberg Collection purchased by the Leiden Museum. Of these, nearly one-third were obtained from caves of archaeological interest (see Samal Island, etc.).

During the war a most interesting new work—entitled *Craneos de Filipinas*—was published at Madrid in 1942, the author being Francisco de las Barras de Aragon. This valuable production describes and illustrates the collection of Philippine skulls in the Anthropological Museum at Madrid—totalling 81 specimens from 17 provinces and islands. Of these, at least 19 skulls were found in caves of archaeological interest.

It is too late to now attempt an adequate discussion of the valuable data contained in these craniological works, which must be reserved for a future supplement to the present paper.

(6) *Bibliography.*—More than 1,100 titles have already been prepared for the Bibliography of Philippine Archaeology, mentioned on pp. 365–366, *ante.* The total titles are expected to reach about 1,500.

ILLUSTRATIONS

(Line drawings are by Manuel M. Santiago. Photographs are either from the Beyer or the Hester Collection)

Plate 1

Fig. 1. Fossil stegodon tooth, from a Middle Pleistocene deposit at Site A, Rizal Province; natural size. (This deposit contains also tektites and early palaeoliths.)

2. Three early palaeoliths of chalcedony from Middle Pleistocene deposits in Rizal Province; × ½. (Sites A and B.)

Plate 2

Fig. 1. Four typical Rizalites, or Philippine tektites, from the Lake District of Rizal Province; × ⅔. (From a Middle Pleistocene deposit.)

2. One big Zambales–Pangasinan tektite, with rare type of radiating surface sculpture; from the Babuyan Site, near Zambales–Pangasinan border; × ⅔.

3. One extra-large Bikol tektite, with deep grooving; from dredging operations near Paracale, Camarines Norte; × ⅔.

Plate 3

Fig. 1. Davao palaeolith of brown jasper, found by F. G. Roth in a gravel pit thought to be Middle or Late Pleistocene; × ⅔.

2. Bulakan early palaeolith from Site W.

3. Rizal Province palaeolith from Site A; found with stegodon fossils and tektites; × ⅔. (Chalcedony.)

4. Typical Late Pleistocene palaeolith, from Site G near border of Bulakan and Rizal Provinces. (Of flintlike chert.) Resembles certain European Chellean types, and certain cognate forms from the Pleistocene laterite beds of the Madras presidency in India.

5. A probable Late Pleistocene palaeolith of well-patinated obsidian; from Site 26 of the Rizal Province Lake District; × ⅔.

Plate 4

Fig. 1. A Mesolithic artifact of Hoabinhian type; from Site F on the Rizal–Bulacan borderline; × ⅔. (Of a tough quartzite.) This type common in Indo-China, but relatively rare in Luzon.

2. A probable Mesolithic flint artifact of the large implement type (but may be Late Pleistocene), from Site A, Rizal Province; natural size.

3. Eight Mesolithic semimicroliths of obsidian and chert; from the Lake District of Rizal Province; × ½.

Plate 5

Fig. 1. Eight Mesolithic or Protoneolithic microliths of chalcedony, flint, and other translucent materials; all from Rizal Province, several sites; natural size. (In reversed position.)

2. Two Protoneolithic axe-adzes, ground at the blade only; both from Site C, Rizal Province; natural size.

PLATE 6

FIG. 1. Typical Early Neolithic adze, in three positions (face, edge, and cross-section); from Site 22, "Kalumpang," in the Lake District of Rizal Province; × ⅔. (Of andesite, thickly patinated.) Closely related to the Early Neolithic of Bacson, Indo-China.

2. Rounded form of Early Neolithic adze, or chisel, in three positions as above; from Site A, Rizal Province; × ⅔. (Of andesite, thickly patinated.) The "Walzenbeil" type of Heine-Geldern.

PLATE 7

Transitional form from the Early to the Middle Neolithic adze, in four positions (edge, face, cross-section, and ridged back); from Site W, Bulakan Province; about ½ natural size. (Of andesite, thickly patinated. This is the earliest known form of the ridged adze.

PLATE 8

FIG. 1. Early type of shouldered adze, very rare in Philippines; from Tanauan, Batangas Province; natural size. (Of andesite, well patinated.) This type is best known from Assam, Burma, and parts of Indo-China.

2. Small disk of flinty quartz, with sharpened edges; from Tanauan, Batangas Province, and found with shouldered adze; natural size. Several similar specimens have been found, all from Batangas sites; but the type is known also from Hongkong.

3. A later type of shouldered adze, showing kinship to the shouldered bronze celt; from Batangas Province; natural size. (Of a fine-grained porphyry.) Only two shouldered axes are known from Rizal Province, and these both show kinship to Formosan and Celebes types rather than to the Indo-China and Batangas varieties.

4. A small thin chisel with a rare type of pointed butt; from Site C, Rizal Province; natural size. (All specimens on this Plate are regarded as Middle Neolithic types, some early and some late.) In reversed position.

5. Typical tanged adze from Batangas Province, of the type believed to be ancestral to the tanged adzes of the central and eastern Pacific Islands region; × ¾. (This type is scarce in the Philippines, being replaced by the "stepped" adze.)

PLATE 9

FIG. 1. Ten Neolithic flaked tools of obsidian (scrapers, points, knife-saws, and combination tools); from Early and Middle Neolithic sites in Rizal Province. Large numbers of used flaked tools of these types are found in Rizal, Bulacan, and Batangas Provinces; × ¾

2. The backs of two Late Neolithic trapezoidal adzes, showing early transitional forms leading up to the "stepped" adze; both made of fined-grained black basalt, the smaller specimen (from Ifugao) being thinly patinated and showing the earliest type of butt-shaving; about ¾ natural size. The larger specimen (from Bi-

nangonan, Rizal Province) shows a slightly deeper reaming out of the primitive "step." (About ⅔ natural size.)

PLATE 10

FIG. 1. Six Neolithic flaked arrowpoints and spearheads, all from Rizal Province sites; natural size. (Three of obsidian, and three of chalcedony and flint.)

2. Three types of Late Neolithic nephrite spearheads of the polished variety; all from Batangas sites; natural size. (Eight different shapes exist.)

PLATE 11

FIG. 1. Six Late Neolithic adzes (all trapezoidal in cross-section), showing gradual evolution of the fully "stepped" form; all from Batangas sites; × ½. (Mostly of hard grey and black stones.)

2. Late Neolithic gouge (with cross-section), made of highly polished and very hard mottled violet-grey stone; from a Batangas site; × ½.

3. Small Late Neolithic adze or chisel of clear green jade, plain-backed; from a Batangas site, in San Felipe; × ½.

4. Polished block of clear green jade, about 7 mm. thick, being sawn in narrow sections for bead-making; from a San Felipe site, Batangas Province; × ½. (First step in manufacture of long cylindrical jade beads.)

PLATE 12

FIG. 1. Engraved grey stone block believed to have been used in printing designs on barkcloth, in the Batangas Late Neolithic period; × ¾. (Some barkcloth beaters, with a special type of lining, were probably used as printers.)

2. Medium-sized adze of a fine quality of polished nephrite, partially sawn in two; from a Batangas site; × ¾.

3. Fragments of four types of jade bracelets, two clear green, one yellow-green and one greenish grey); all from Batangas sites in the Cuenca area; × ¾. (The third specimen from the top is related to a special type of Late Neolithic jade ornament, usually appearing as an earring or as an amulet-pendant, regarding which I am publishing a separate paper.)

4. Middle or Late Neolithic barkcloth-beater and printer; formerly in the museum of the Ateneo de Manila, where it was labelled as having been found in 1889 in use as an idol by the pagans of eastern Misamis, who believed that it had fallen from the sky; about ⅛ natural size. (The "horned" type of beater is known throughout the Philippines, having been found in Luzon, Cebu, and Mindanao. Two other types, one straight-backed and one with a grooved body, are known from Luzon and Cebu only.)

PLATE 13

FIG. 1. The four whole bronze celts found in the Batangas sites; about ⅔ natural size. (Two upper specimens were taken away by the Japanese during the war; but the two lower specimens are

still in the collection.) Closely related types have been found in Indo-China, Hongkong, and Celebes.

2. Reconstruction of the one bronze spearhead found in the Batangas sites, only about one-third of the specimen having been actually recovered; × ½. (Could have been a dagger blade?
3. Bronze grip from the handle of a dagger; from a mixed Bronze-Age and Late-Neolithic area in Batangas; about ⅔ natural size. (Similar specimens have been found with Bronze-Age earrings and other jewelry, in Rizal Province.)

PLATE 14

Reconstruction of six decorated pottery vessels of the Early Iron Age; from Rizal Province Sites A, C, and H; about ⅛ natural size. (This type of pottery decoration dates from the 2d century B. C. to the 2d century A. D., and is found in Celebes, the Philippines, Japan, Korea, and southern Manchuria. Some archaeologists believe that it originated in Asia Minor or southern India.)

PLATE 15

FIG. 1. Small Early Iron-Age vase from a land-burial near Calapan, Mindoro (see area No. 36 in text); about ⅔ natural size.

2. Pottery disk, carved from a potsherd; from an Early Iron-Age grave in Site C, Rizal Province; × ⅔. (From two or three up to a dozen or more such disks are found in nearly every prehistoric Iron-Age grave. They are regarded either as grave toys or as symbols of primitive "money.")
3. Heavy gold earring from an Early Iron-Age grave on Hill No. 1, at Site A in Rizal Province; × ⅔. This type was found only in the graves of chieftains or wealthy men—the type in women's graves being of oval shape and smaller size. (All existing specimens were taken by the Japanese during the war.)
4. Green glass bracelet from the same grave as Fig. 3 above; about ⅔ natural size. Evidence has been found indicating that this type of glass was manufactured at Site A.
5. Early Iron-Age beads from graves at Site A, Rizal Province; about ⅔ natural size. Stone beads are chiefly of carnelian, rock-crystal, banded agate, and a few of amethyst and other semiprecious stones. The other beads are of green and blue glass (locally made?), and of red, yellow, and orange glassy pastes. Some of the holes in the earlier stone beads are very crookedly bored, usually starting in from both ends and often meeting irregularly.

PLATE 16. LATE TANG AND EARLY SUNG WARES—(9TH TO 11TH CENTURY).

FIG. 1. A fruits-shaped fluted small covered round box, made of a fine quality of Ying Ch'ing thin porcelain, covered with a thin bluish-green glaze; with an embossed inscription in Korean characters on the base that indicate a 10th or 11th century date for the piece; about ½ natural size. Formerly in the collection of Mr. and Mrs. Kenneth B. Day; found in a land-burial site near the Cebu cement works at Naga, about 20 km. south of Cebu City,

associated with early Sung Ting ware and celadon pieces. (A similar piece exists in the Eumorfopoulos Collection in England.)

2. Small white-glazed porcelain vase, in the Hester Collection; found with other pieces of probable Late Tang date, in a grave excavated by Pio Montenegro in the Batanes Islands; about ½ natural size.
3. Tiger's head of white porcelain covered with a thin bluish-green glaze of Ying Ch'ing type; found in an Early Sung-period site (Site E) in Rizal Province; × ½. Several other small images, representing human and animal figures in various positions, were found in the same site.
4. Late Tang or Early Sung bowl, with incised floral scrolls inside, under an unusual bluish-grey glaze; design and workmanship similar to certain early pieces found in Batanes and Sulu Provinces; about ⅓ natural diameter.

PLATE 17. TYPICAL LUNGCHUAN SUNG CELADONS OF THE 11TH AND 12TH CENTURIES

FIG. 1. Large Lungchuan celadon, dish, 14 inches in diameter, of good color and workmanship; from a land-burial in southwestern Cebu. (Twelfth century date.)

2. Two typical Sung celadon bowls; both from land-burials in southern Cebu; about ⅓ natural size. Similar types are known from North China and Korea—the narrow foot-ring and lotus-petalled sides being characteristic of the early Sung pieces. (Lungchuan body ware, and thick green glaze.)

PLATE 18. SAWANKHALOK BLACK-GLAZED AND CELADON PIECES OF 13TH AND 14TH CENTURY TYPES

FIG. 1. Four small vases or bottles of black-glazed and dark-brown glazed Sawankhalok stoneware; from the Hester Collection, all being found in land-burials in Bohol and southern Cebu; about ½ natural size.

2. Sawankhalok celadon large jarlet or bottle, with two ears; from the Hester Collection, found in Cebu; about ½ natural size. (Good specimen, with olive-green glaze.)

PLATE 19. FOURTEENTH-CENTURY SAWANKHALOK CELADON BOWL

Two views of medium-large Sawankhalok celadon bowl, with dark-green crackled glaze; from my General Philippine Collection, found in a southern Cebu land-burial; about ⅔ natural size. Black stand-ring on base is characteristic of all Sawankhalok wares.

PLATE 20. TYPICAL LARGE MING JARS

FIG. 1. A large brown-glazed stoneware jar, with two dragons in relief; found in 1885 in a limestone burial niche uncovered during a storm, in the mountains just back of Wak barrio, Balambang, Cebu Island. Design is partly filled with a lime deposit difficult to remove. When found, jar was covered with an engraved but considerably corroded silver plaque, which was later sold to a Chinese merchant. This specimen was collected in 1920 at Wak barrio by Eugene de Mitkiewicz, and is now in the W. Cameron Forbes Collection at Woods Hole, Massachusetts. It

is of late 15th or early 16th century date; and measures 28 inches in height.

2. Early Ming blue-and-white jar, excavated from an early Ming grave in south-central Cebu Province. Specimen is a little less than 20 inches high, and is of 15th century date—being covered with an elaborate floral design in a dark violet blue. (From my General Philippine Collection.)
3. A large brown-glazed stoneware jar with lionhead ears and incised dragon design, of 16th century or beginning 17th century Late Ming date and style. Some fragments have been found in caves, but usually jars of this type are heirloom pieces preserved in native homes. This specimen, which is 23 inches high, came from southern Cebu. (General Philippine Collection.)

PLATE 21. INDO-CHINA(?) AND EARLY MING CHINESE WARES OF THE 14TH OR BEGINNING 15TH CENTURY

FIG. 1. Two interesting jarlets with unusual blue-and-white or black-and-white designs, belonging to the special "red-bottomed" group believed to have been made somewhere in Indo-China or South China. From the Hester Collection; found in Cebu or Bohol. (The large specimen, ⅓ actual size, is known in our notes as the "Forbes type.")

2. Two small square water-vessels (for the inkstand), with designs in a dark Mohammedan blue on the sides, and originally with molded archaic white dragons on top; originally from the Veles Collection, both having been found in early 15th century land-burials in Cebu; about ⅔ natural size. Fragments bearing designs of this type were the only blue-and-white specimens found in the 14th century area of Site B in Rizal Province—and they are regarded as among the earliest Ming blue-and-whites to be made.

PLATE 22. A SPECIAL TYPE OF INDO-CHINA BLACK-AND-WHITE WARE OF THE "RED-BOTTOMED" GROUP

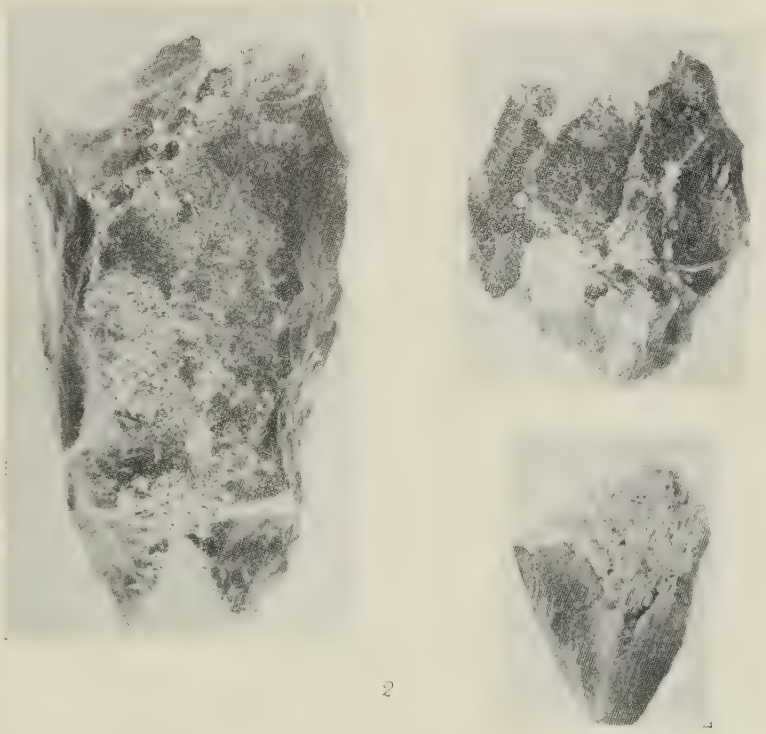
Top and bottom views of a small plate, belonging to the "red-bottomed" group, with black floral design under a finely crackled straw-colored glaze, and with five peg-marks on the upper side; believed to have been produced in Indo-China or in some unknown Siamese or South China kiln. Of 14th century date; found in a land-burial of central Cebu; about ½ natural diameter. The Shino wares of the Japanese were copied from this type.

TEXT FIGURES

FIG. 1. Map of the Rizal Province Archaeological Survey, covering sites found up to the end of 1929 (106 sites in all); 14 additional sites, recorded in 1930, not being shown here. (Copied in reduced size from the original 1930 blueprint, by Manuel Santiago.)

2. Archaeological map of Jolo Island, Sulu Province, showing 20 recorded sites found and partially explored by the late Capt. F. G. Roth. (Copied in reduced size by Manuel Santiago, from the original large map prepared by F. G. Roth and H. O. Beyer in January, 1940.)

1



2

PLATE 1. MID-PLEISTOCENE PALAEOLITHS AND FOSSILS.

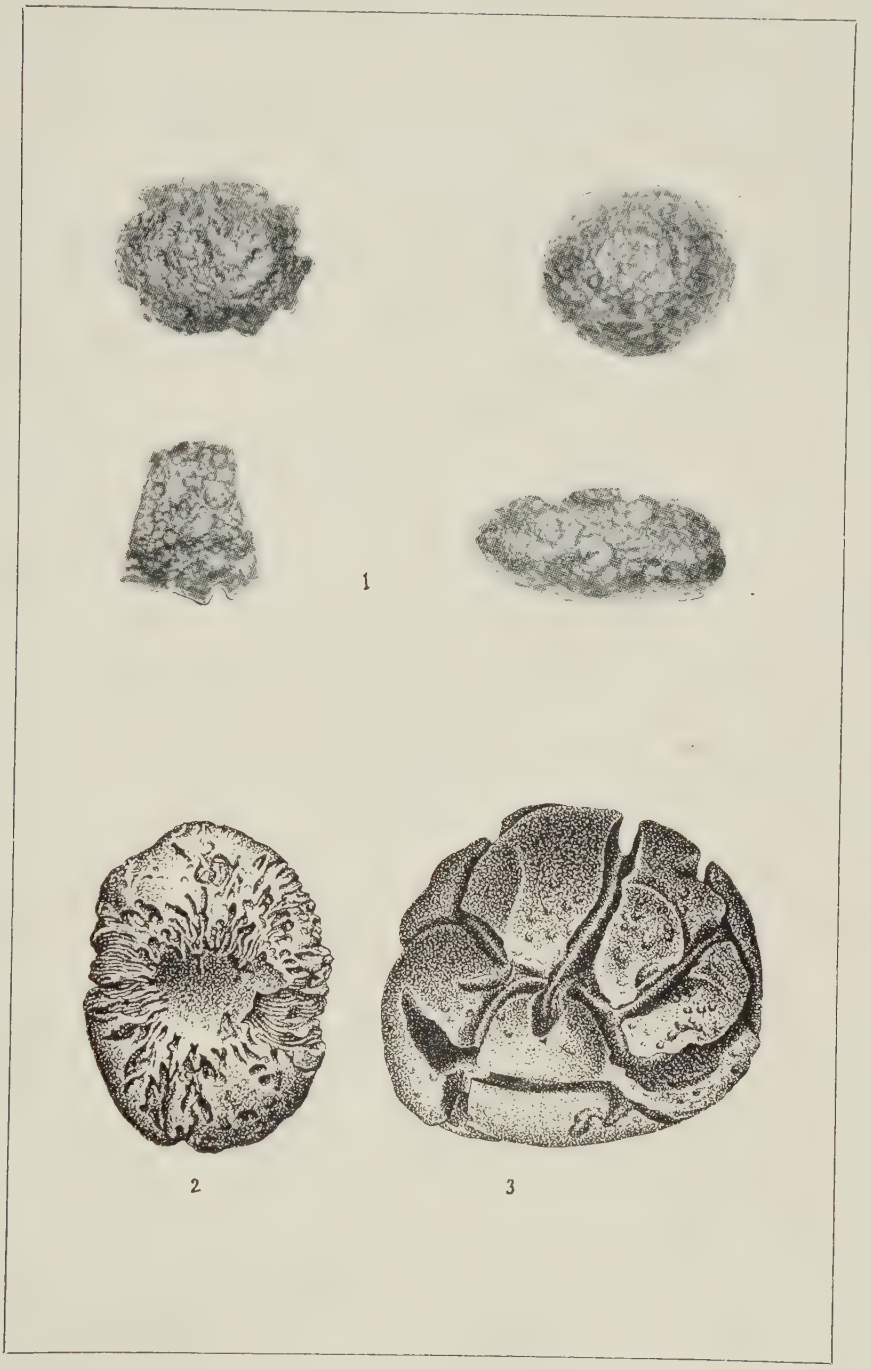


PLATE 2. MID-PLEISTOCENE TEKTITES.

PLATE 3. LATE PLEISTOCENE PALAEOLITHS.

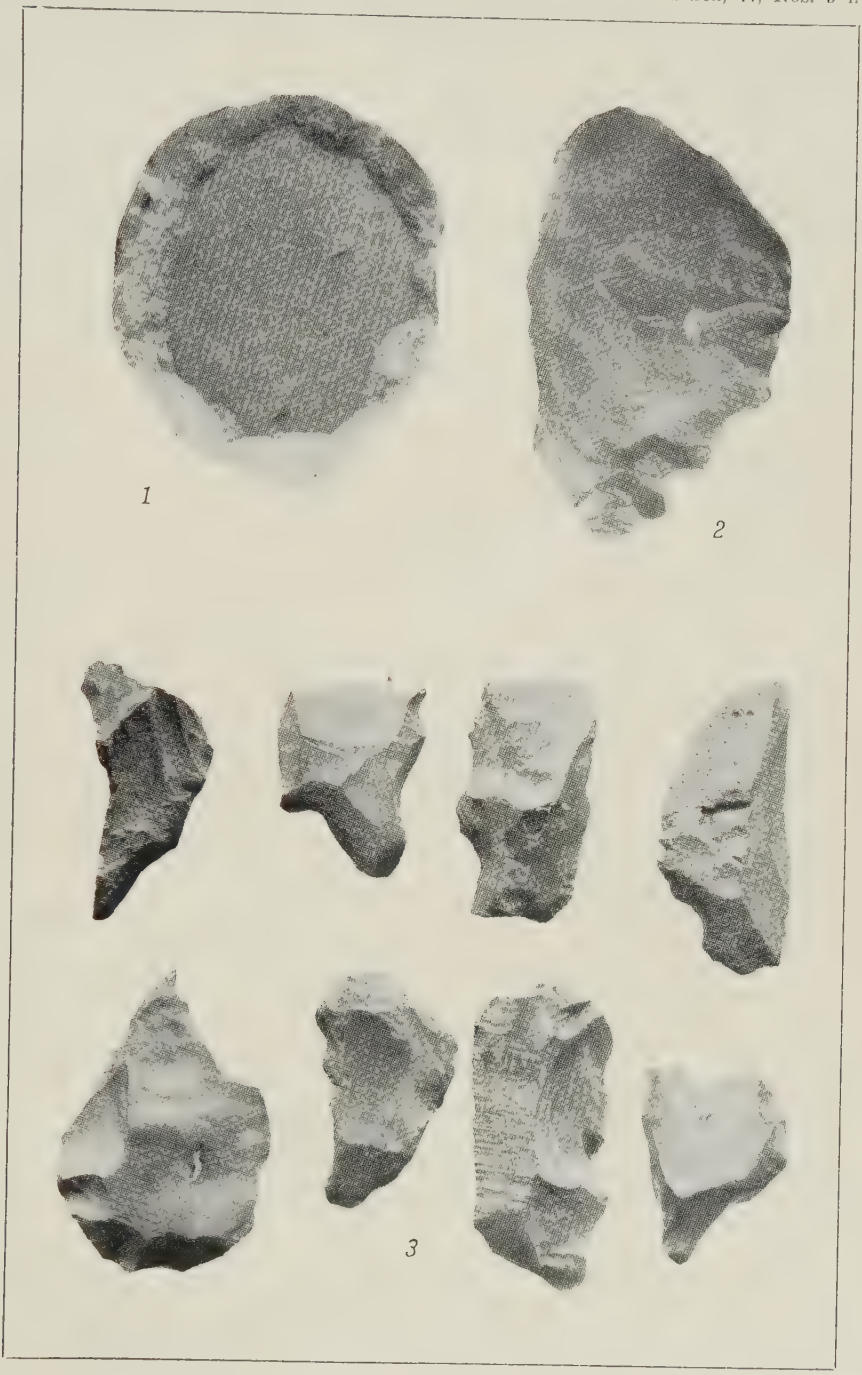


PLATE 4. EARLY POST-PLEISTOCENE MESOLITHIC ARTIFACTS.

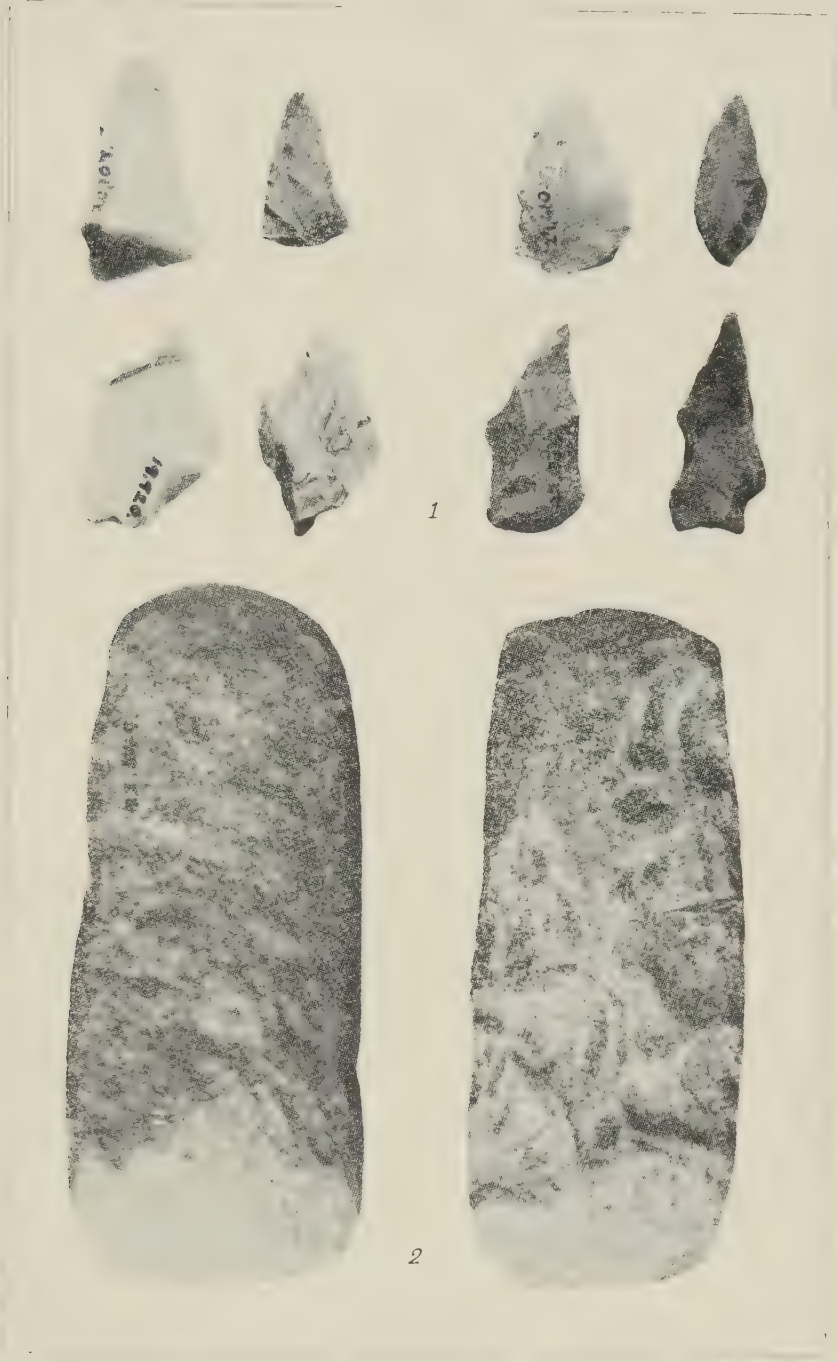


PLATE 5. LATE MESOLITHIC AND PROTONEOLITHIC ARTIFACTS.

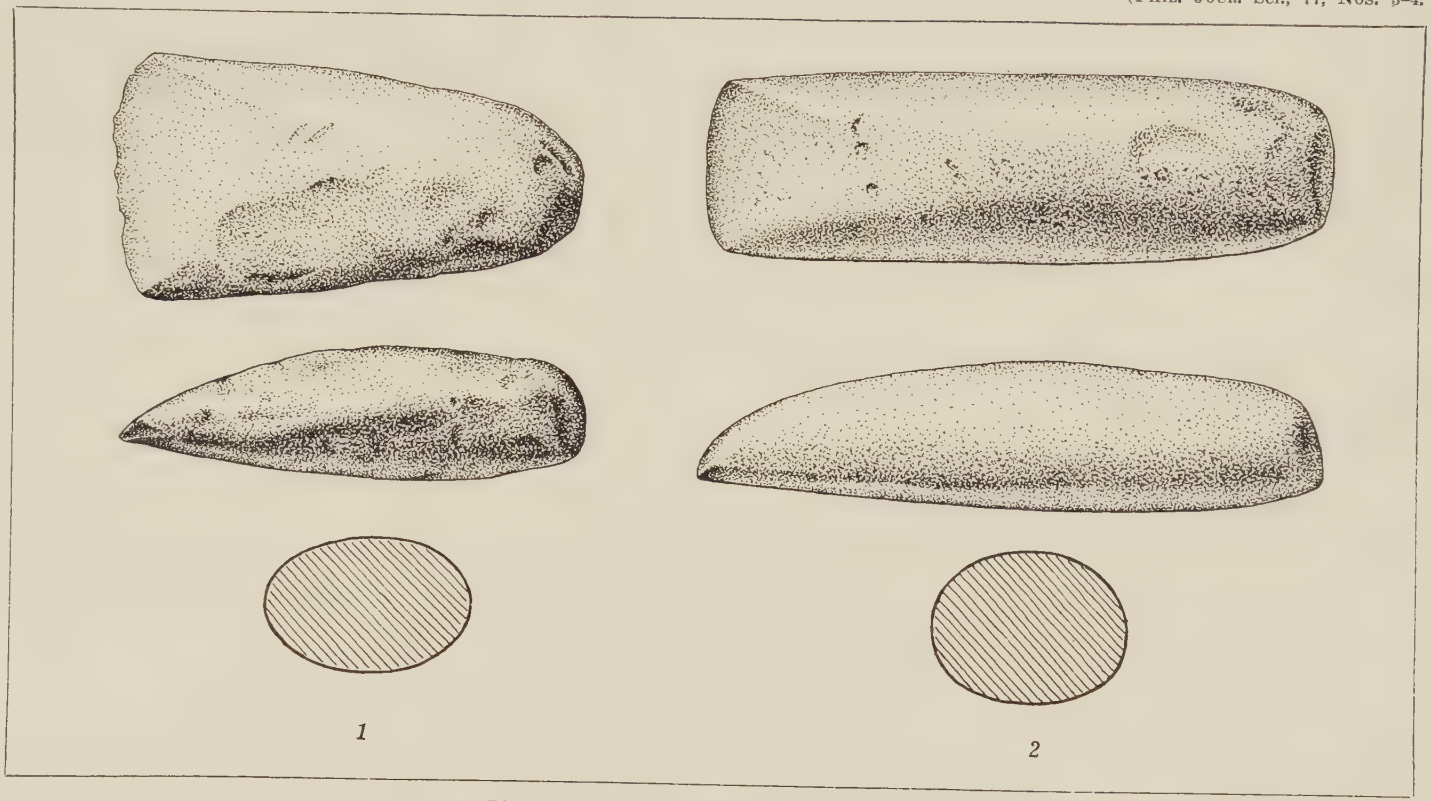


PLATE 6. EARLY NEOLITHIC ADZES.

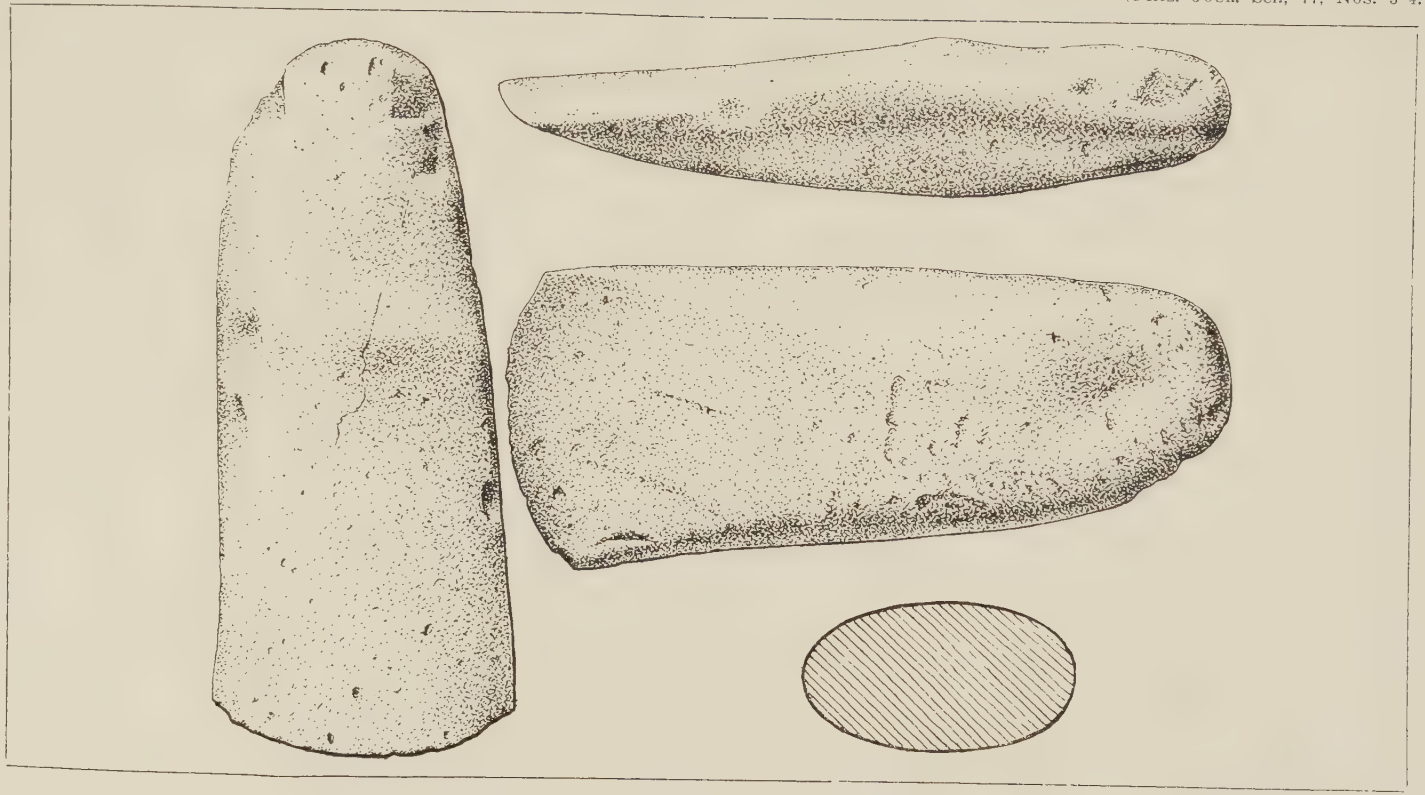


PLATE 7. TRANSITIONAL TYPE, FROM EARLY TO MIDDLE NEOLITHIC.

1

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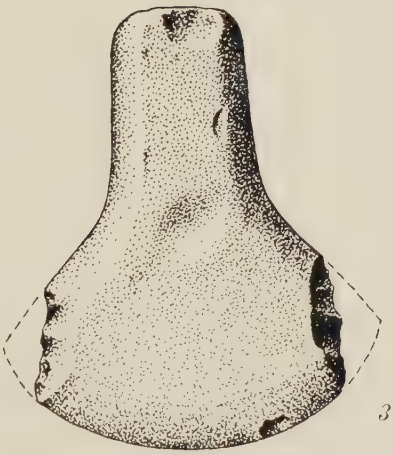

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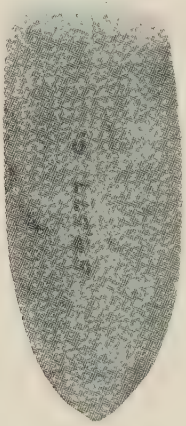


4

5

PLATE 8. MIDDLE NEOLITHIC TYPES.

PLATE 9.

FIG. 1. NEOLITHIC FLAKED OBSIDIAN IMPLEMENTS.
2. LATE NEOLITHIC TRANSITIONAL ADZES.

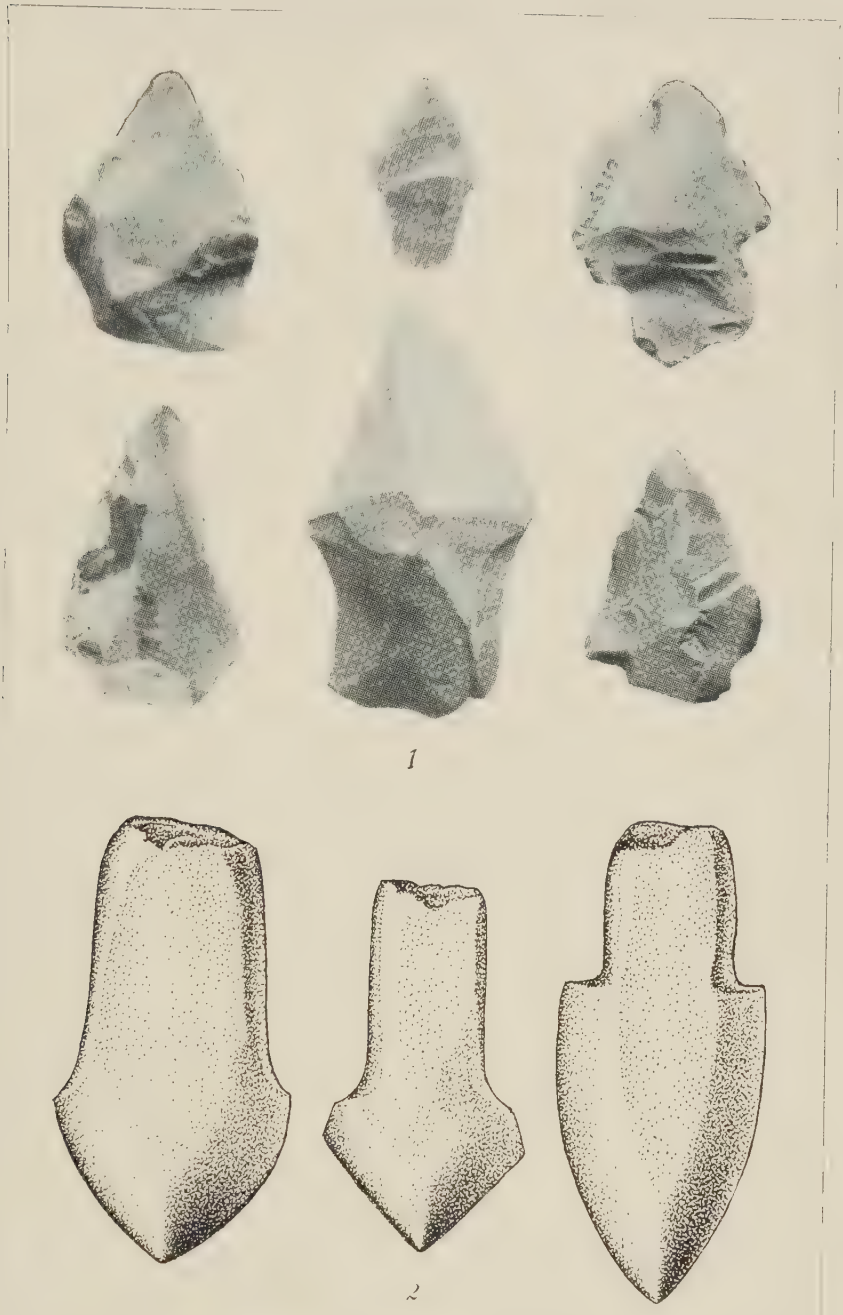
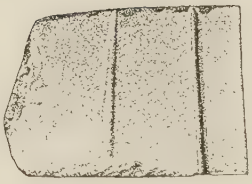


PLATE 10. NEOLITHIC ARROWPOINTS AND SPEARHEADS.

1

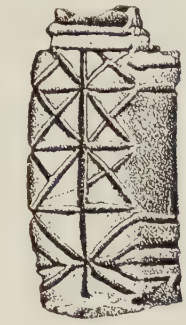
2

3

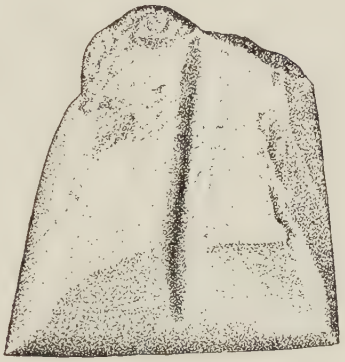


4

PLATE 11. LATE NEOLITHIC STEPPED ADZES AND OTHER TOOLS.



1



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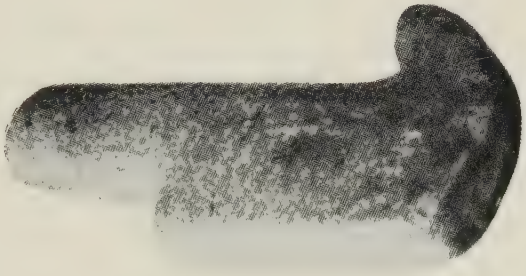

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PLATE 12. LATE NEOLITHIC JADE JEWELRY AND BARKCLOTH PRINTERS AND BEATERS.

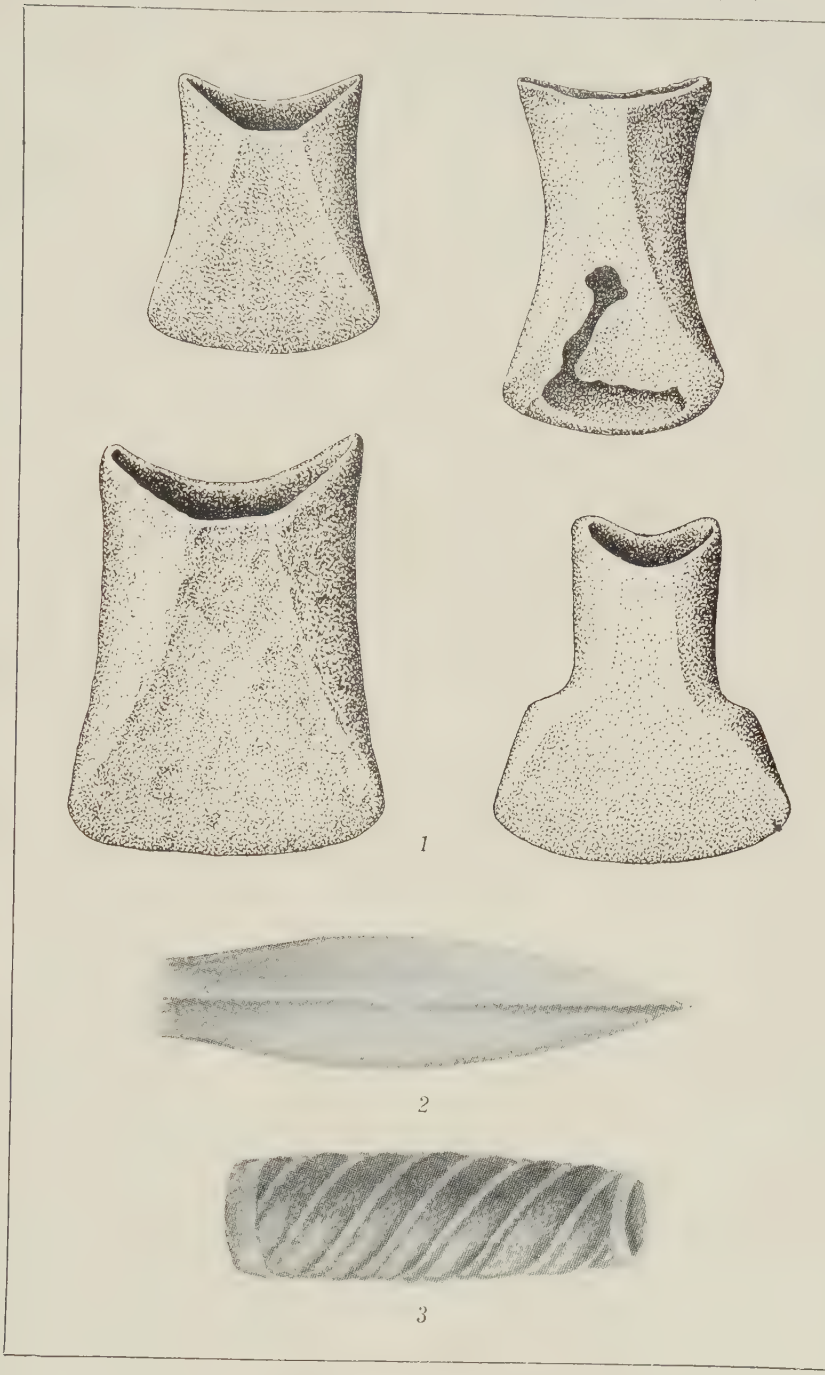
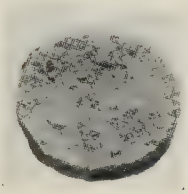


PLATE 13. BRONZE-AGE ARTIFACTS.

PLATE 14. POTTERY OF THE EARLY IRON AGE.

1

3



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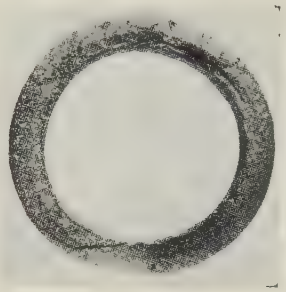

4

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PLATE 15. IRON-AGE GRAVE JEWELRY AND POTTERY OBJECTS.

1

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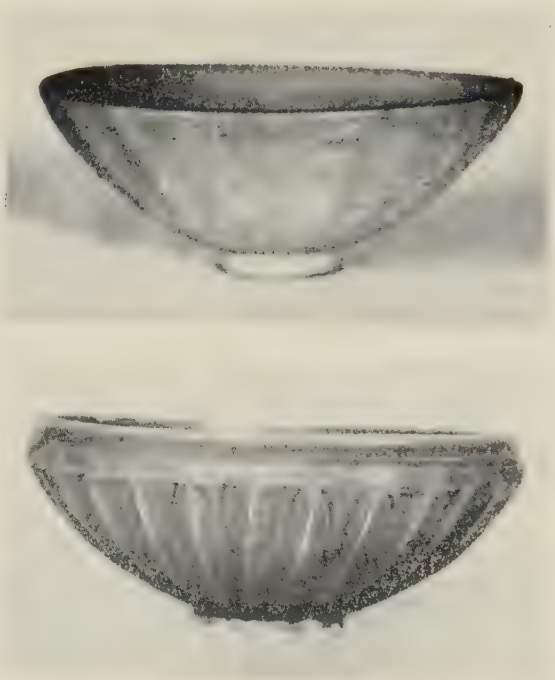
PLATE 16. LATE TANG AND EARLY SUNG WARES—9TH TO 11TH CENTURIES.

1



2

LATE 17. TYPICAL LUNGCHUAN SUNG CELADONS OF THE 11TH AND 12TH CENTURIES.

1

2

PLATE 18. SAWANKHALOK BLACK-GLAZED AND CELADON PIECES OF 13TH- AND 14TH-CENTURY TYPES.

PLATE 19. MEDIUM-LARGE SAWANKHALOK CELADON BOWL WITH DARK-GREEN CRACKLED GLAZE.

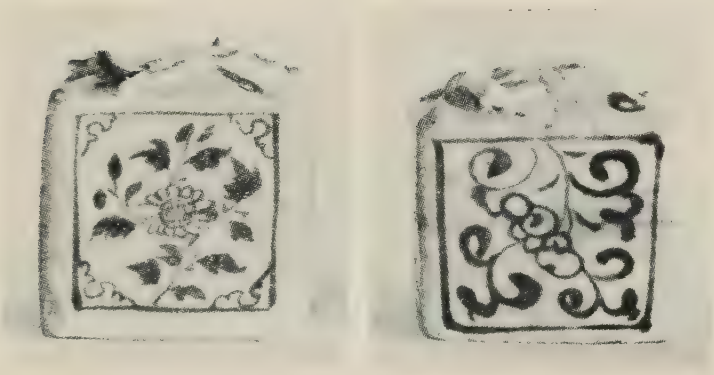
1

2

3

PLATE 20. TYPICAL LARGE MING JARS.

1



2

PLATE 21.

FIG. 1. TWO TYPICAL JARLETS OF THE "RED-BOTTOMED" GROUP.
2. BEGINNING TYPE OF EARLY MING BLUE-AND-WHITE WARE.

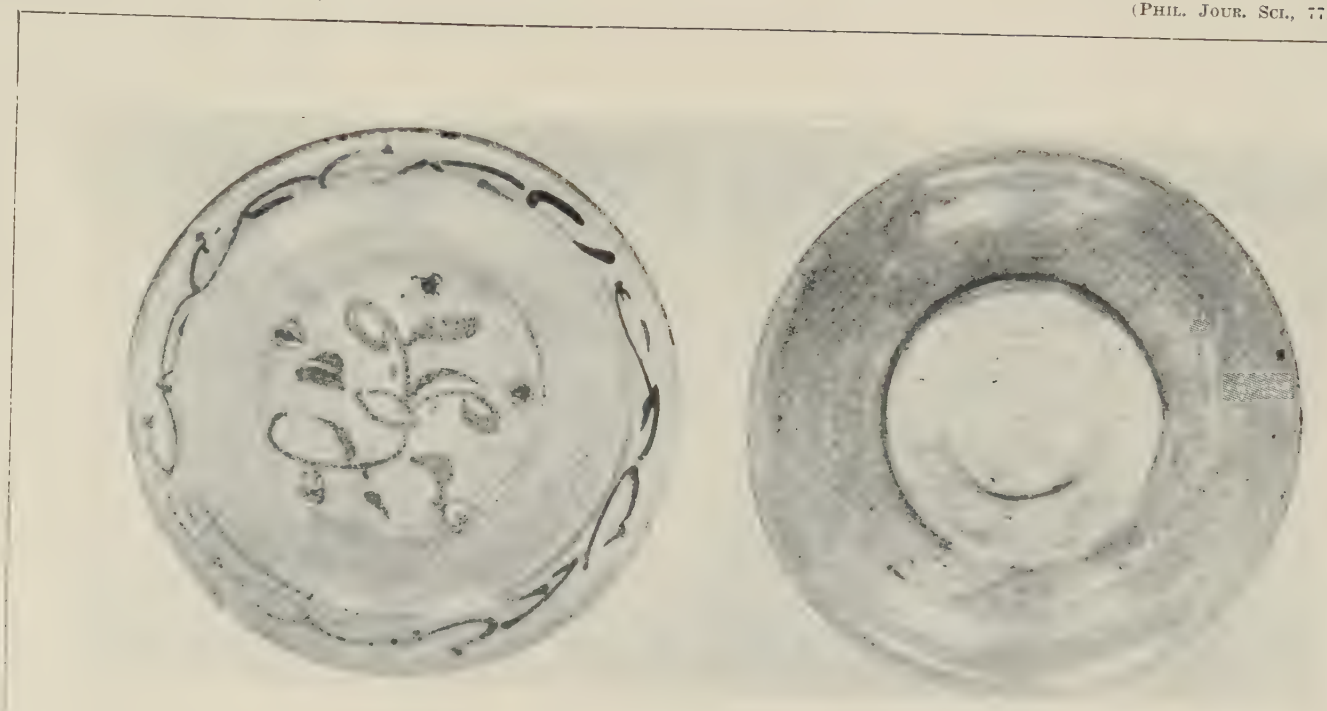


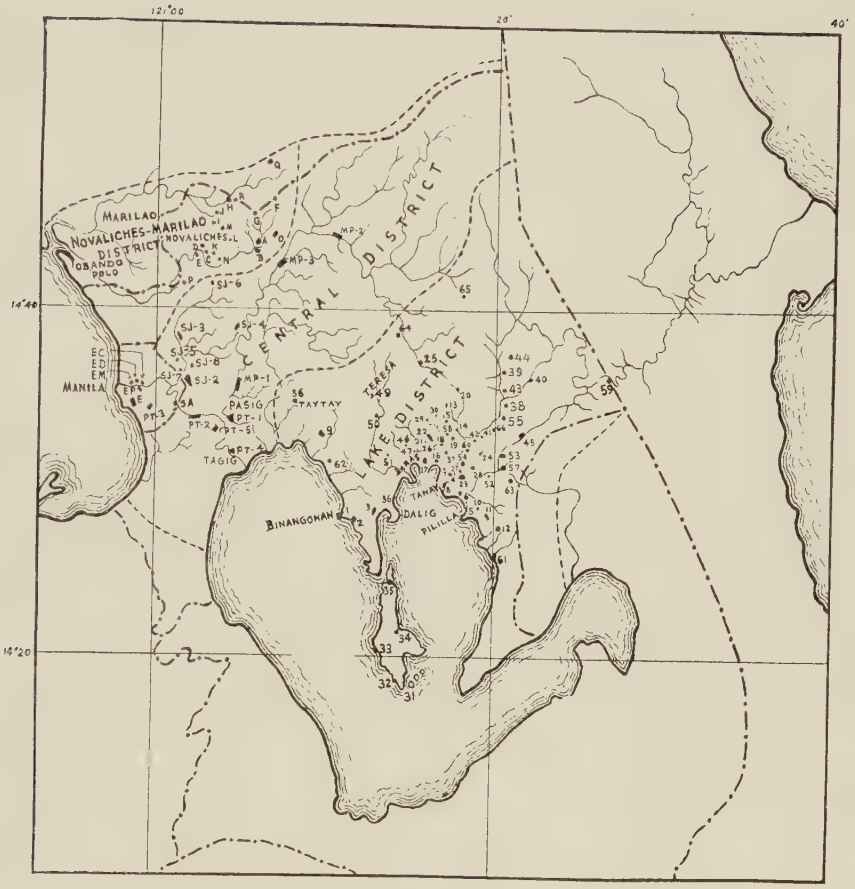
PLATE 22. A SPECIAL TYPE OF INDO-CHINA BLACK-AND-WHITE WARE OF THE "RED-BOTTOMED" GROUP.

MAP OF RIZAL PROVINCE
ARCHAEOLOGICAL SURVEY

By

H. OTLEY BEYER

1926–1929



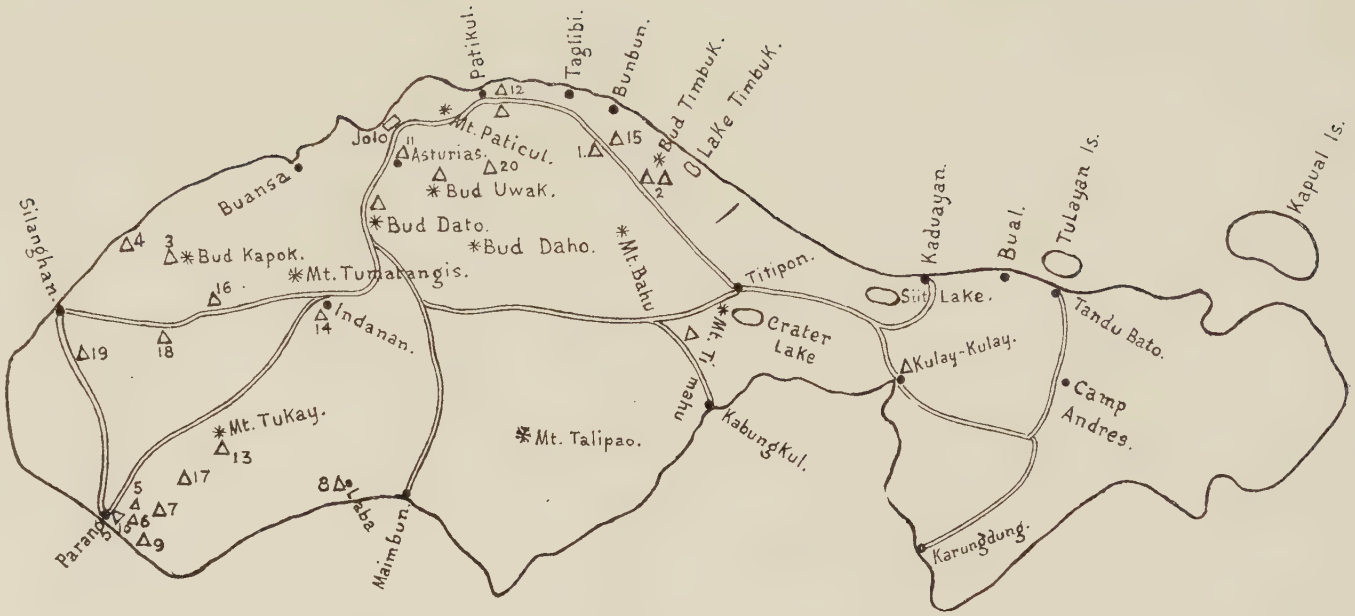
LEGEND

106 Sites, distributed as follows:

I. NOVALICHES-MARILAO DISTRICT
Sites A to R.

II. CENTRAL DISTRICT
Sites SJ-1 to SJ-8.
Sites E, EC, ED, EM, EP.
Site SA.
Sites PT-1 to PT-5.
Sites MP-1 to MP-3.

III. LAKE DISTRICT
Sites 1 to 66.



ARCHAEOLOGICAL MAP
OF JOLO ISLAND

By F. G. Roth, H. O. Beyer, and
M. Ma. Santiago

MANILA
JANUARY, 1940

LEGEND

= Roads.

△ Archaeological Sites.

Site List:

1. Sapa Lawakan.
2. Bud Tumbuk.
3. Bud Kapok.
4. Timahu.
5. Luas.
6. Labuan.
7. Laum Sua.
8. Bud Laba.
9. Tubig Jaikah.
10. Parang Barracks.
11. Asturias Barracks.
12. Patikul Sites.
13. Bud Tukay.
14. Indanan.
15. Bud Makam.
16. Lañgpas.
17. Linoho.
18. Tubig Dakula.
19. Piahan
20. Takas.

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[New names and new combinations are printed in *italics*.]

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